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An Investigation into optimum curve setting for overall image quality on the Xeikon DCP/50D

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An Investigation into Optimum Curve Settings for Overall Image Quality on the Xeikon DCP/50D

by

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A thesis project submitted in partial fulfillment of the requirements for the degree of Master of Science in the School of Printing Management and Sciences in the College of Imaging Arts and Sciences of the Rochester Institute of Technology

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Master's Thesis

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With a major in
has been approved by the Thesis Committee as satisfactory
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Abstract

The Xeikon DCP/50D is a color, electrophotographic press. Its ability to handle variable data and variable page lengths make it a top competitor in the digital printing markets. The technology is a dry toner based system, set in a configuration of four units, and able to duplex in a single pass. Multiple jobs, handling multiple images and data can now be printed in sequence with no press adjustment needed between jobs. With this new technology come new issues in maintaining desired image quality on press.

In traditional printing, such as offset, accounting for dot gain and transfer curves were an important part of maintaining the desired results. A transfer curve accounts for the dot gain and adjusts the image accordingly. Although the dot gain on the Xeikon DCP/50D press is minimal, the system allows for several different dot gain settings to be applied to the file in-RIP (Raster Image Processor). These dot gain setting adjustments on the Xeikon DCP/50D are transfer curves that are applied to the file. After testing and establishing the effects of the individual dot gain settings (or transfer curves) within the Xeikon system, this thesis project attempts to establish one of the settings as an optimum curve setting for overall image quality in images of varied keyness and color.

In addition to an optimum curve for all image types, this thesis project attempts to gain an understanding of the Xeikon's transfer curve settings and their effects on the different types of images. High key images were favored by different transfer curves than low key images in traditional printing. If this concept carries over, different types of images will benefit from different dot gain settings on the Xeikon DCP/50D.

Chapter 1
Introduction and Statement of the Problem

Statement of Problem. The need for consistency has always been a key issue in printing. Digital printing is even more fickle than traditional offset lithography because of its potential to completely change data (variable data); both within a document and from document to document. With electrophotography, dot gain is held at a minimum because of the lack of absorption of the toner into the substrate. The toner is a plastic media that sits on top of the substrate. This can be an advantage in electrophotography because the effects of a switch in substrate on the image quality should be minimal unlike with offset or inkjet. Because the transfer curves are set in the beginning (either at RIP or before), the curves remain the same throughout the production run, substrate and image variations have little effect. The Xeikon DCP/50D is a versatile machine capable of printing a variety of jobs, one immediately after the other, making it critical that a curve be in place to handle this ever-changing variable.

The curves discussed in this thesis project are transfer curves. A transfer curve will be referred to from now on as simply "the curve" or curves. It is defined as a compensation curve whose original purpose was to correct for dot gain on a traditional press.

The raster image processor, or RIP, uses a two-dimensional array of pixels to hold computerized digital data. According to Frank Cost, author of *Pocket Guide to Digital Printing*, a RIP is a "computer program that inputs high-level page descriptions and outputs low-level data streams that can be fed directly to a digital print engine to be rendered or video board to be displayed."[1] The RIP available for this thesis project is the Barco Graphics

PrintStream; any references to a RIP will be to this particular model unless otherwise noted.

Background and Significance. The Xeikon DCP/50D has dot gain controls in-RIP. These controls emulate various reproduction curves. By gaining an understanding of what curves these controls create, we can control image reproduction. As investigated in Voraphat Vacheravothan's thesis project, "Dot Gain," workflow can be improved by using the in-RIP controls on the Xeikon DCP/32D. This thesis project intends recommend the optimum curve (or dot gain setting) for the best reproduction of all types of images. There will also be information gathered as to the best curve for each type of image (for example a higher dot gain setting for low key images) so that if further adjustment needs to be done on press the correct adjustments can be made.

Reasons for Interest. In my undergraduate education, I learned about digital presses but my exposure to the equipment was limited. During my graduate courses, I had the opportunity to take an introductory digital press class. Dealing with the digital presses opened up my narrow scope of the true capabilities of this type of printing. Only after an opportunity to use the machines, did I understand the power of variable data and variable repeat lengths. Taking an independent study with Dave Jimenez, a technical scientist in the Technical and Education Center of the Graphic Arts and Imaging at Rochester Institute of Technology, I was able to further learn about the Xeikon and Indigo products. With my concentration in design and typography, an investigation into continuous tone image reproduction on the Xeikon DCP/50D seemed a perfect marriage of my fascination with digital presses and my education with production aesthetics.

Endnotes for Chapter 1

[1] Frank Cost, *Pocket Guide to Digital Printing*. (Albany: Delmar Publishers, 1997.) pg. 234

Chapter 2
Background Theory

The Building Blocks of the Xeikon DCP Systems

Electrophotography encompasses several different technologies. The technology that is most relevant to this investigation is the technology that exists within the Xeikon DCP/50D. Because both Xeikon presses, the DCP/32D and the DCP/50D, are very similar machines they will both be examined in an attempt to understand the Xeikon system used in this investigation. As seen in the Figure 1, there are four main areas within the Xeikon DCP/50D press: the paper roll supply (PRS), the printing units, the fusing area (including the GEM), and the cutting/stacking area. Also important is the RIP, which is separate from the main press and can vary depending on the setup of any particular system.

The Xeikon system is arranged in a tower configuration. For the DCP/50D there are four printing units (Cyan, Magenta, Yellow and Black) on either side of the substrate. The substrate is guided through with tension or web rollers. Each color unit has its own LED print head, photoconductor, and development station.[1] This particular arrangement allows for duplexing, or simultaneous, printing on both sides of the substrate as it makes a single pass through the press. Because of its configuration, the press's speed is constant—printing simplex is the same speed as printing duplex.

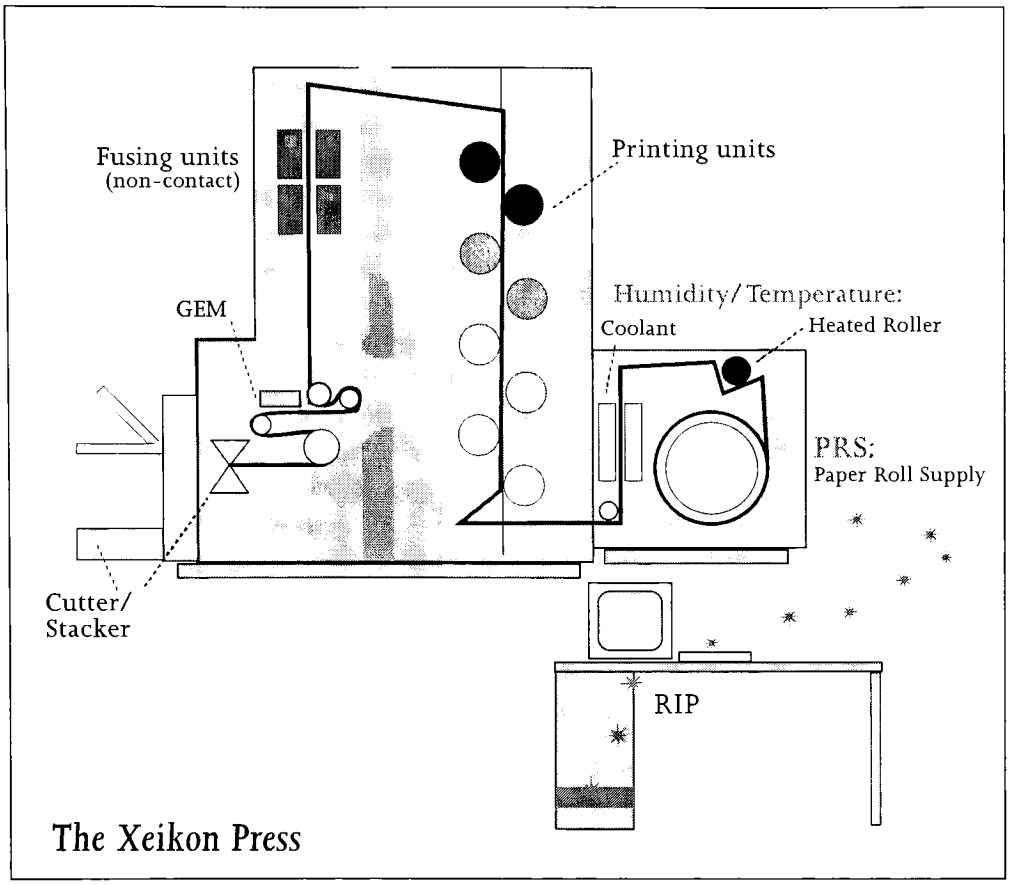


Figure 1

The translation of data:

Raster image processor (RIP). Each new generation of the Xeikon allows for several RIP configurations. The configuration chosen should match the needs of the printer. Options such as storage, processing speed, and scripting functions are just a few of the considerations in the available RIPs for the Xeikon DCP printer line. In terms of general image quality, the results from any of the available RIPs are virtually the same.

In the RIP, the Xeikon DCP/50D has the option for variable imaging bit-depth. The options available to us in-RIP during this investigation are one, two or three data depth values. By laying different amounts of toner each printed spot in a pixel can achieve up to

64 levels in some of the DCP systems. The higher level of screen ruling, such as 150 lines per inch instead of 133 lines per inch, the better the resultant gray values of a printed pixel. The one and two depths are used for line art and results in a faster RIP time. The three depth is used for any continuous tone images. The three depth may be slower but results in a higher quality image because of the additional information.[2] Overall, this can enhance the Xeikon DCP/50D's 600dots per inch causing it to resemble a much higher quality output. The resolution has been casually compared to gravure, because both technologies deal with varied levels of gray for each spot.[3]

Controller. According to Fenton and Romano, in *On-Demand Printing*, "The standard print engine is driven by PostScript code. . . .The controller creates four bitmaps, one for each color. Output from the RIP is buffered to disk. Bitmaps are stored . . . and then transferred to the page buffers. Each color printing unit has its own 72 MB [mega-byte, a measurement of data storage] image-buffer memory." The data is then transferred from memory to the light emitting diode (LED) array. Optical networking connects microprocessors to their supervising controller to handle the separate processes.

Substrate roll supply:

The paper roll supply (PRS) is where the rolls of substrate are loaded. In addition to the substrate in-feed, this station also includes temperature and environmental controls. Because the electrophotographic process relies on the principal of charge transfer, the substrate must be carefully monitored and conditioned for optimum performance.

The technology inside each printing unit:

When the substrate reaches the printing unit it should be conditioned and ready to accept an image. With the information it has received from the RIP, the printing unit knows where each spot is located and how much toner to apply. The heart of the printing unit is the photoconductor drum. The photo conductor drum is involved in nearly all the steps of imaging. The light source is what defines the image area. The corona wires are used in

transfer and cleaning. These components depend on the toner's ability to hold the correct charge and adhere to the substrate for a quality result.

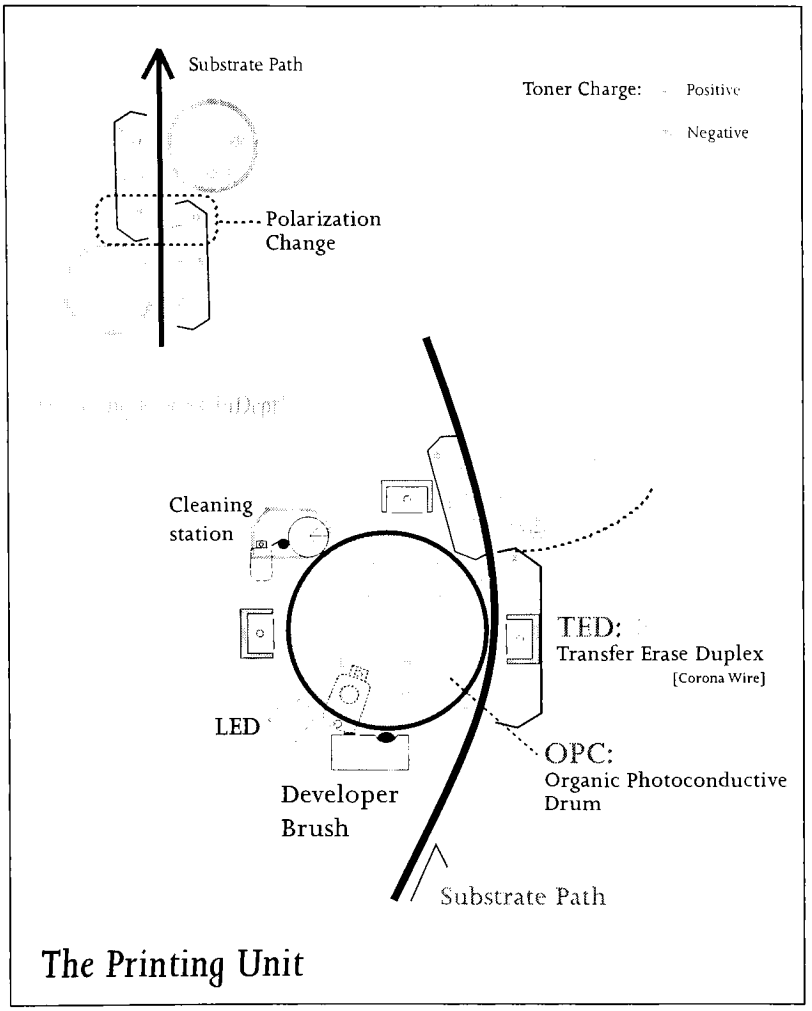


Figure 2

Organic photoconductor drum. The organic photoconductor drum (OPC) is an aluminum core covered with a light-sensitive substance. This light sensitive substance converts light energy into an electrical image.[4] Frank Romano, author of *The Digital Printing Primer*, states:

> "The main function of an OPC is to transfer toner from the developer roller to specific areas of the page. During development, the OPC is involved in five stages: 1)

> Cleaning: The left-over electrical charges are removed from the OPC surface, using a light source (in corona-based engines), and toner is removed from the OPC by the wiper blade. 2) Conditioning: An even charge is applied to the OPC using a corona . . . 3) Writing or discharging: Specific areas of the drum are exposed to laser light, which reduced the charge in those areas, forming a latent image. 4) Developing: Toner is applied to the discharged areas of the drum using a magnetic roller or a developer roller. 5) Transfer: The toner is transferred from the OPC surface onto the paper using an oppositely charged electric field and gravity."[5]

Light emitting diode (LED). The light source (either a laser or LED) exposes the image areas of the OPC. The light from the LED neutralizes the image area. The Xeikon DCP/50D system uses an LED, or light emitting diode to image the photoconductor. The LED light source is an array of thousands of light emitting diodes, each one switching on or off to create the image on the photoconductor. The arrays are combined on semiconductor chips; a typical printer will use several chips joined together and some type of lens to help focus the light. Unlike lasers, the other common light source used in electrophotographic printing, the LEDs have no moving parts and are less expensive to maintain. Because of the lack of moving parts, the LED is hailed as being a more reliable and uniform technology. It is also believed to be less reactive to vibrations.[6] The Xeikon DCP/32D uses 7,424 LEDs to expose the photoconductor.[7] The Xeikon DCP/32D also has an overall resolution of 600 dots per inch (dpi) with an addressibility of 64 levels per individual dot.[8]

Corona wire. Electrophotographic depends on charges to create the image area and adhere the toner. Due to its sensitivity, the photoconductor, or OPC, is charged, in complete darkness, by the primary corona wire.[9] The corona wire is very fine wire that applies a charge. Two types of corona wires, primary and transfer, exist and apply their charges in different fashions; the primary corona wire applies its charge to the OPC, while the transfer corona wire applies its charge so that the toner is electrically pulled from the OPC onto the substrate. The transfer corona applies its charge to the backside of the substrate, a charge opposite from that held by the image area's toner particles. Because corona wires

performance are affected by humidity or other environmental factors, and they require a sealed system because they produce ozone, primary charge rollers (PCR) are used instead of, or in conjunction with, corona wires.[10] The Xeikon system uses a special corona wire called a corotron to control the electrostatic charge."(Some systems use a scorotron. A scorotron is comprised of corona wire with a grid inside a metal case.)

Developer brush. Toner particles are then applied onto the photoconductor by the developer roller. The system used in the Xeikon DCP/50D is a brush-like roller. This brush is the intermediary roller between the OPC and the toner storage hopper and meters the toner.[12] Toner is attracted only to the uncharged areas (image areas) because the charged areas repel the similarly charged toner. Finally, the toner is bonded to the substrate by a non-contact fuser or cleaner brush. [13] Then the OPC is cleared of any remaining toner particles by the wiper blade.[14]

Toner. The two types of toners used in electrophotography systems are liquid and dry toners. The liquid toner suspends the particles in a carrier (such as isopar in the Indigo system) which supports the charge given to the solution.[15] The toner used in the Xeikon DCP/32D and DCP/50D systems are made of super fine, dry particles. This toner is not absorbed because it is a plastic that sits on top of the substrate, accounting for its minimal dot gain. More specifically, the most common toner is often a chemical composition of pigment and resin in a non-conductive resin casing.[16] If the dot gain is so minimal on the press, why do we have settings in the first place? The most immediate answer is that our eye is used to a certain amount of dot gain. The press compensates by adding some gain, so the image appears the way the customer anticipates.[17] Also, it is not uncommon for customers to keep the standard SWOP CMYK settings in Photoshop. The Xeikon DCP/50D emulates the dot gain necessary and the resulting image is pleasing. From a workflow standpoint, the in-RIP curves can be very helpful.

The fusing and cutting stations.

Non-contact fusing. The non-contact fusing system used on the Xeikon DCP/50D is a two-part process. The first part of the process is the fusing station, where the toner is heated and adhered to the substrate. Because the Xeikon DCP/50D has a two part fusing process, the fusing temperature can be reduced, allowing a greater variety of substrates that can be printed in the system.[18]

Gloss enhancement (GEM). In the Xeikon DCP/50D system, the second part of Xeikon's fusing process is an optional gloss enhancement (GEM) unit. The GEM unit comes with every press, although it may carry a different name on an OEM partner's machines. The GEM unit applies further heat, causing the toner to smooth out, and then calenders the sheet through a set of rollers. This smoother surface causes a higher reflectance and results in higher gloss. The GEM unit can be left off, which turns the heat elements off in the GEM unit. Even with the elements off, some smoothing will occur because of the rollers.

Cutting. One of the benefits of the Xeikon DCP/50D system is its ability to handle variable substrate cut-off lengths. The cutting mechanism on the press achieves variable cut-off using a sensor that identifies the web cut mark and synchronizes the cutting unit. The cut mark is indicated by the page size in the file.

Traditional Print Quality Issues with Dot Gain and Transfer Curves

Although electrophotographic printing does not fall under traditional printing, there are some issues that span both fields. Many of the reproduction issues of new technology arise from the same fundamentals used in traditional printing. For example, compensation curves, used in traditional printing, are the same as the transfer curves used in-RIP on the Xeikon DCP/50D for dot gain adjustment.

Dot gain has always been a key to quality reproductions. In traditional printing methods, such as offset lithography, the half tone dot was subject to growth due to absorption into the substrate and the pressure from the rollers. Ink viscosity, blankets, and fountain solutions are other contributors to dot gain in offset lithography. The highest amount of dot gain usually occurs in the mid-tones, or around the 50% screen range. Dot gain that occurs in the shadow areas is usually less noticeable to the eye.[19]

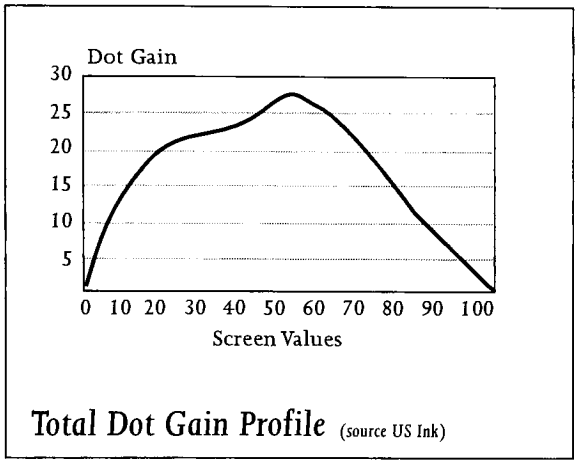


Figure 3

Figure 3[20] shows a typical dot gain profile. Notice how the mid-tone area has much higher gain than the highlight and shadow areas. In traditional processes, where dot gain was a huge factor, a compensation curve would be created to correct for the dot gain on press. A curve can be created out of 25%, 50%, 75%, and 100% dot values, but for higher accuracy more values should be utilized.[21]

Figure 4[22] shows an example of a compensation curve. Notice in the measured test, in Figure 4, how the curve slopes outward. This outward slope indicates dot gain, most apparent in the mid-tone range. The compensation curve (also shown in Figure 4) gives an example of how the curve is adjusted in the problematic areas to neutralize the dot gain.[23]

When using the compensation curve the resulting image off the press should closely match the original intended values.

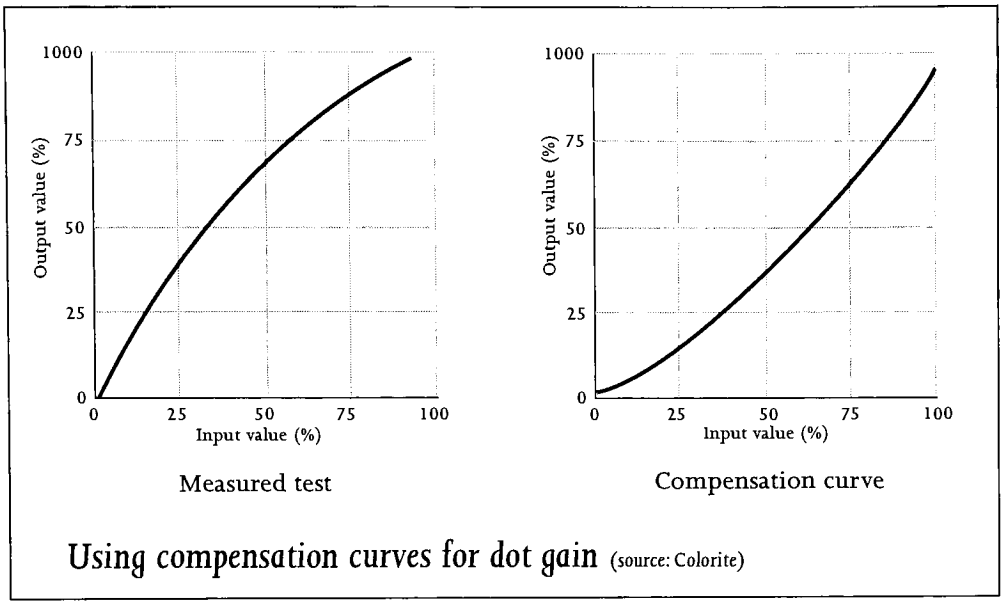


Figure 4

Endnotes for Chapter 2

[1] Tamara Pope, *The Guide to Paper and Digital Printing*. (Charlottesville: INTERQUEST, Ltd., 1998.) pg. 96–97

[2] David Jimenez, Interview. (July, 2000)

[3] Howard Fenton and Frank Romano. *On Demand Printing*. 2nd Edition. (New Jersey: Printed by Prentice Hall, 1998.) pg 229

[4] Frank Romano, *Digital Printing Pocket Primer*. (San Diego: Windsor Professional Information, LLC. 2000), pg. 59

[5] *Ibid.*, pg. 46–47

[6] Uri Levy and Gilles Biscos , *Nonimpact Electronic Printing: The Reference Handbook*. 2nd Edition. (Charlottesville: INTERQUEST, Ltd., 1998.) pg. 21

[7] Romano, *Digital Printing Primer*, pg. 59

[8] Tamara Pope, *The Guide to Paper and Digital Printing*, pg. 96

[9] Eliot Harper, "Digital Printing Issues 2000: Economics, Markets, Technology and the Digital Future" Digital Printing Council (DPC) White Paper 3. (May, 2000.) pg. 14

[10] Romano, *Digital Printing Primer*, pg. 38

[11] *Ibid.*, pg. 59

[12] *Ibid.*, pg. 39–40

[13] Harper, "Digital Printing Issues 2000: Economics, Markets, Technology and the Digital Future", pg. 14

[14] Romano, *Digital Printing Primer*, pg. 39–40

[15] *Ibid.r*, pg. 30

[16] *Ibid.*, pg. 25-26

[17] Jimenez, 2000

[18] Romano, *Digital Printing Primer*, pg. 65

[19] *What is dot gain?* http://www.usink.com/what_is_dot_gain.html

[20] *Ibid.*

[21] Colorite Website. "Dot gain and tonal control for printing."
http://www.aols.com/colorite/dotgain1.html

[22] Ibid.

[23] Ibid.

Chapter 3
Review of the Literature

The History of Digital Printing

The rich beginnings of printing can be traced back down through Gutenberg and beyond. Digital printing is the youngest sibling of Offset Lithography, Gravure, and Screen Printing. Digital Printing encompasses inkjet, toner, dye diffusion, and wax transfer technology.[1] Because the Xeikon DCP/50D will be our primary press for study we will focus our attention on toner technology. The typical beginning for the toner technology is pinpointed at the arrival of the first laser printer.[2] In 1978, the Xerox 9790 was introduced. IBM produced a similar machine and other Xerox machines followed, resulting in saturation in the high-speed market. So although it carried the advantage of being first, Xerox's machines were too expensive and had difficulty competing with the new Canon LBP-X. The Canon machine, although slower and less sophisticated, eventually won the market because its lower price tag made it more appealing.

When the personal laser printer hit the market, a new revolution in digital printing began. Digital printing has continually refined its quality and speed, making it a more viable option for shorter run printing lengths.

Because each print that comes off a digital press is an original print, the potential for variable data, small runs, and in some cases variable cut-off (size) can be realized. It is the ability to create a string of wholly original prints that differentiates the digital printer from a copier. The digital press requires a front end that translates and processes this data (such

as a RIP, raster image processor), whereas the copier does just as its name implies—it makes duplicates or copies of an original.

Xeikon NV was founded in 1988. They define themselves as "the leading provider of digital color printing solutions for professional applications in the commercial printing, production variable data printing, packaging printing, label printing and special applications markets."[3] Xeikon is in the on-demand color printing segment of the market.[4]

Xeikon began as a printing engine manufacturer and eventually released its own press. The first digital press with the Xeikon engine was the Agfa Chromapress. Although Indigo beat the Chromapress to market, Indigo's first machines were highly unreliable and were only sold in pairs. The second machine was to work as the back up to the first. Xeikon engines now can be found in several different machines: their own DCP series, Agfa's Chromapress, IBM's InfoColor, and the Xerox Docucolor 70.

Current State of Xeikon

At this time, Xeikon is on its third generation of web digital presses. These latest presses, the DCP 320D and DCP 500D will feature higher speeds, easier operation, and the new Version 3-toner/developer technology. The DCP 320D and DCP 500D where featured at DRUPA 2000 (along with Xeikon's new digital sheet-fed, color press, the CSP 320D) and were available at the end of June 2000. The web widths remain the same as the previous model, as does the single pass duplexing function (called the One-Pass Duplex.) Each new system will offer two speeds. The DCP 320D will come with a standard speed of 70 A4 pages per minute (ppm.) The DCP 500D will come with a standard speed of 100 ppm. Both the 320 and the 500D will have a high speed mode of 130 ppm.

In addition to increased speed, the "ready-to-print status" is reduced to 60 seconds, shortening the amount of make-ready time. Also improved are the substrate roll loading, print consistency and web tension. The print consistency is improved by changes made to the color units and by the new Version 3 toner/developer. The Version 3 offers a longer developer life, improved print quality and enhanced process stability. Xeikon's change in ink pigments is intended to increase lightfastness and overall color of the print. The eXpert DFE accommodates the increased speeds of the DCPs and has automated impositioning, color and density control.[5]

Early in the year 2000, Xeikon bought Agfa's Chromapress business. This should prove to be very lucrative as Agfa's consumables business is transferred to Xeikon. Up until the sale of Chromapress, Agfa controlled the supply of toner and developers for use with all the Xeikon print engines. It is believed that Xeikon plans on lowering the price of the toners and developers to stay more competitive.[6]

The Market for Digital Printing

High page cost is one of the disadvantages of digital printing. So it comes as no surprise that Xeikon (and other companies) are continually working on lowering the cost per page. According to Xeikon, their current cost per page is significantly lower than in 1993.[7] "And we expect that over the next year, the cost will drop to about 15 or 16 cents, and some systems may get it down to 10 cents. Within three years we predict that it could be 5 to 7 cents. At that level, the cost for digital color printing with toner will be in the offset printing cost region," states Eliot Harper in "DPC White Paper."[8] In addition to lower cost per page, the number of digital color printers to be shipped worldwide is projected for continued growth. Logically, an increase in the number of units means an increase in availability and therefore more products printed on digital presses.

More and more companies are choosing to take advantage of the variable data on a Xeikon and produce customized catalogs, short run books, packaging and other marking tools. Speed, flexibility and productivity are the key issues at play in the new markets of customized printing.[9] Xeikon highlights several companies that have used the digital potential to their success. One of the most famous success stories is that of the online company Edmunds.com. Edmunds produces full color, image heavy booklets that are customized by the end-client on-line. The results are said to be improved customer satisfaction and loyalty. Because the Edmunds car workbook relies on the information it imparts, the overall booklet appearance is critical to the sale. Edmunds has found their niche market and expects to complete 100,000 orders a month by the end of the year 2000.[10]

Another company Expresscopy.com works with realtors to produce a product that fulfills a need in key markets. "Expresscopy.com is currently producing 16,000 color pages a day and expanding," states Lee Dietz, president of Expresscopy.com, "We depend on our Xeikon DCP/32D presses to handle the high volumes that make e-business profitable."[11]

"And not surprisingly, color usage is increasing. Although hard numbers are difficult to come by, CAP Ventures, Inc., Norwell, Mass., projects a 21% compound annual growth rate in the retail value of print-on-demand, with color growing from $5 billion to more than $22 billion by 2003," states Alexander Hamilton in Quick Print Products' feature on color copiers.[12]

	Firms 1999	With digital printing* 1999	With digital printing 2006
Commercial printers	41,145	3,200	24,000
Book printers	200	112	180
Financial and leagal printers	100	100	100
Magazine and periodical printers	200	—	160
Business forms. tag and label printers	1,845	19	1,600
Greeting card printers	49	14	49
Specialty printers	987	120	500
Nespaper and other printers	5,746	—	500
Packaging printers	1,746	90	900
Converting services	2,900	—	100
Bindery services	2,000	—	900
Pre-press services	6,200	850	2,000
Total	63,118	4,505	30,989

*Includes black and white color systems using inkjet or toner for multipage reproduction

Projected Growth in Market source: DPC White Paper No.3

Figure 5

With the increase of color and the maturation of toner based systems, digital printing looks to play a significant role in the industry. Digital printing, especially toner processes, are projected favorably for constant growth. Figure 5[13] shows the projected growth in market for digital printing overall. These numbers include all the processes that make up digital printing. A drastic jump in use of digital printing is anticipated for the year 2006. For a breakdown of growth by processes (ink, toner, ink jet and other) see Figure 6.[14] Note that in Figure 6 the projected use of toner based systems is a steady increase. By the year 2012 toner is foreseen rival of ink based systems, both carrying a significant market portion.

	1997	2002	2007	2012
Ink based	74%	64%	57%	50%
Toner based	24%	30%	35%	41%
Ink jet based	2%	5%	7%	7%
Other	1%	1%	1%	2%
Total*	100%	100%	100%	100%

*Includes all copying ans printing systems

Projected Growth by Process (based on standard pages) source: DPC White Paper No.3

Figure 6

Previous Studies in Optimum Reproduction to Enhance Workflow

In June 2000, Voraphat Vacheravothan produced "Dot Gain," a thesis project which investigated workflow issues. His object was to reduce the bottleneck in pre-press by making better use of the in-RIP functionality available on the Xeikon DCP/32D. The first step of his investigation involved mapping the resulting curves from the different dot gain settings. However, it was observed that some the information gathered had test sheets with low density. Some readings had a 100% dot at a density reading of .8, which is below the acceptable range. The Xeikon DCP/32D densities should all be above 1.0 with only a +, - variance of .1. According to his results, "...the solid ink density (SID) of the output from the conventional and proposed workflow. The SID of cyan was 1.17–1.20, the SID of magenta was 1.13–1.16, the SID of yellow was .84–. 87, and the SID of black was 1.30–1.37."[15]

Vacheravothan found that his proposed workflow (of setting the dot gain at the RIP) saved a significant amount of time because the file transfer occurred only once. Not only was there a timesaving, but also according to his findings, the image quality was preferable to that of the conventional workflow. (His conventional workflow adjusted the dot gain

settings in Photoshop.) [6] Because his focus was more on time issues and less on image reproduction, his results were preliminary in the area of image quality. This thesis project hopes to build off Vacheravothan's initial findings by incorporating more images into the test sheet and reinvestigating his transfer curve findings on the DCP/50D (which should be similar to the DCP/32D.)

Endnotes for Chapter 3

[1] Harper, "Digital Printing Issues 2000: Economics, Markets, Technology and the Digital Future"

[2] Romano, *Digital Printing Primer*, pg. 1-3

[3] Xeikon. "Xeikon Raises Digital Printing Benchmark with 'Third-Generation' Digital Color Presses and New Toner/Developer Technology." (April, 2000. Available: www.xeikon.com/news2000_04_05b_e.htm

[4] *Ibid.*

[5] *Ibid.*

[6] "Agfa Sells Chromapress business to Xeikon"

[7] Romano, *Digital Printing Primer*, pg. 111

[8] Harper, "DPC white paper #3", pg 12

[9] Xeikon. "Xeikon Digital Presses Key to E-Business Success." DRUPA 2000. Available: www.xeikon.com/

[10] *Ibid.*

[11] *Ibid.*

[12] Alexander Hamilton, "Features: Color Copiers." Quick Print Products. Available: http://www.quickprintproducts.com/features/1.html

[13] Harper, "DPC white paper #3"

[14] *Ibid.*

[15] Voraphat Vacheravothan, "Dot Gain." Rochester Institute of Technology. (June 2000), pg 50.

[16] *Ibid.*, pg 55–57.

Chapter 4
Statement of Project Goals and Hypothesis

The combination of projected growth both in the use of color printing and toner systems creates the need for digital printing, like the Xeikon DCP/50D. For any of these systems to harness this market growth quality output, speed and reliability remain critical elements in an overall workflow. Determining an optimum tone transfer curve for the Xeikon DCP/50D hopes to find a setting that will best suit the variety of jobs capable on the press without sacrificing image quality.

The benefits of finding an optimum transfer curve include better overall image quality without making adjustments between jobs on press or to the file data in pre-press. Having a minimized amount of adjustments to the job can mean more speed in its creation and execution. Also, by gaining a fuller understanding each of the dot gain settings, these settings can be applied more accurately to a job. If an adjustment to the dot gain setting is necessary or required, guesswork will be minimized.

Statement of Hypothesis

The hypothesis of this study is as follows:

> *If there exists an optimum tone transfer curve, then it will optimize image quality over the entire range of image keyness.*

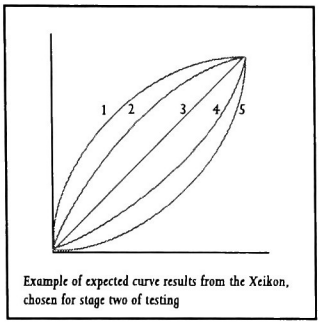
To test this hypothesis this thesis project will attempt to: first, establish the tone reproduction curves of each dot gain setting in-RIP for the Xeikon DCP/50D and, second, use five representative settings to determine the optimum setting for overall image quality. During the course of this investigation, tone reproduction, dot gain, solid ink density, gray balance, and image quality will be evaluated. The outcome of this hypothesis, if it is proved true, could be applied to the Xeikon system to help achieve better results in overall image quality. If the hypothesis is disproved it would suggest that there is no optimum setting for overall image quality and that files should continue to be adjusted in pre-press.

Chapter 5
Methodology

Proposed Method of Research

To test the hypothesis, the testing will be done as a three-step process. The first two steps will be press runs. The first press run will determine the existing controls that the Xeikon DCP/50D allows in-RIP. The second press run will build off the first, by printing sets of standard continuous tone images at five different representative dot gain settings. The third step will be a pyschometric test to determine which dot gain setting's curve produced the most pleasing results. The data depth will be set at the highest level, three, for all testing.

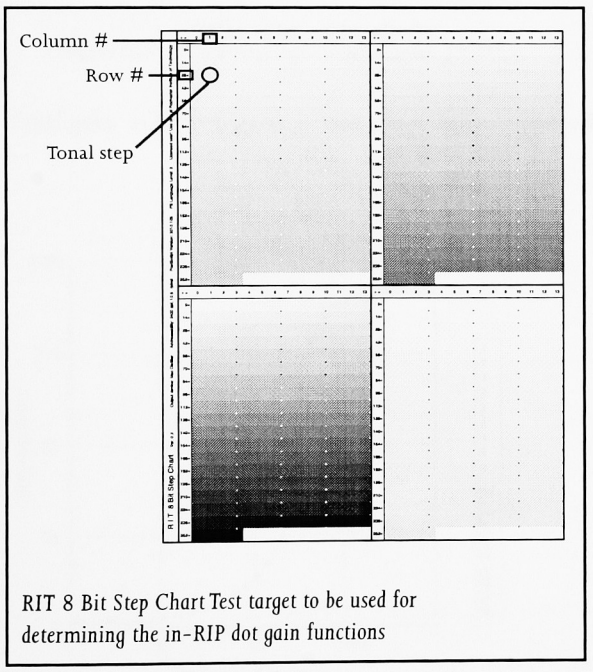
Dot gain transfer curves. The Xeikon DCP/50D has in-RIP dot gain controls. It allows settings ranging from −5 through +35 in 5% increments. Testing all these increments, one at a time, (for a total of 9 different settings, will be established each setting's dot result.) Using this information, five representative curves will be chosen, three towards the middle range, and two more extreme curves (one in each direction.) It is expected that the curves will severely degrade the image on either extreme for normal key images. It is also expected that the inside curves will favor the high or low key images, as is commonly found in traditional print. See Figure 7 for example of these anticipated curves settings.



Example of expected curve results from the Xeikon, chosen for stage two of testing

Figure 7

The test target to be used, the RIT 8BIT Step Test Target, features all possible tonal values available for each color. By comparing the stated, actual value of each increment to the resulting value read by a densitometer it is possible to create a transfer curve. Each dot gain setting should be represented by a different transfer curve. See Figure 8 for a thumbnail of the test target to be used in determining the in-RIP dot gain curves.



RIT 8 Bit Step Chart Test target to be used for determining the in-RIP dot gain functions

Figure 8

Target analysis

Definitions used in target analysis. The equations and definitions used in the RIT 8 Bit Chart Test target analysis, as recommended by thesis project advisor, Dr. Edward Granger.

Step. Each square on the target is a tonal step. The number of a given tonal step is found by adding the row number to the column number.

Density of step. The reflective absolute density as taken by a densitometer.

Reflectance. $\text{Reflectance} = 10^{-\text{density of step}}$

Tonal response. (Or dot area.)

$$\text{tonal response} = \left(\frac{\text{paper value reflectance} - \text{step value reflectance}}{\text{paper value reflectance} - \text{solid value reflectance}} \right) \times 100$$

Relative drive. The relative drive (or curve) accounts for the true density values of the step. For example, step 15 might have a percent dot area of 0%, and step 180 has a percent dot area of 100%. The relative drive accounts for these values and its slope starts at step 15 and ends at step 180. This adjusted curve is then used to calculate tonal gain from the test target information. See figure 9 for an example of the relative drive curve.

$$\text{relative drive} = \left(\frac{\text{number of step} - \text{paper value step}}{\text{solid value step} - \text{solid value step}} \right) \times 100$$

Tonal gain. (Or dot gain.) $\text{tonal gain} = \text{dot area} - \text{relative drive}$

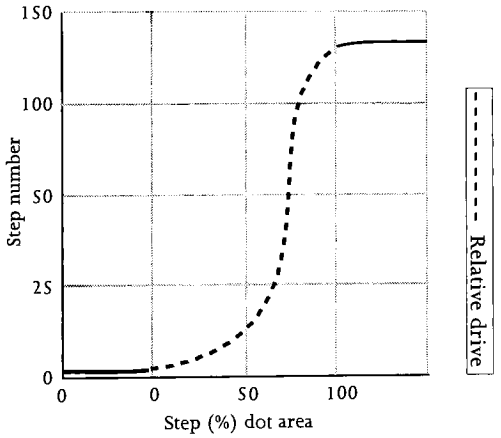


Figure 9

Methods used in target analysis. The methods used in target analysis are a combination of visual evaluation and density measurements. Each chart is divided into four color charts. Each color will be dealt with individually, but in a similar manner. The following methods will be for the reading of one color. These methods should be applied to each of the four colors for the complete target reading. The method steps are, as follows:

- Visually, a check will be conducted to determine (approximately) in which step the first tonal variance occurs. The visual check is determining the earliest sign of tonal response (or first measurable dot) and the last variance of tonal response (before it becomes completely solid.)
- The steps will be confirmed by a densitometer reading.
- Target steps are the last paper step (before any tonal variance) and the first solid step (in the sequence of solids.)
- Once these steps have been identified, one column will be chosen that best incorporates all the tonal variances—starting with paper and ending with solid.
- Each step in this chosen column will be read with a densitometer—from paper to solid values. If there are additional solid values at the end of the chart, it is not necessary to incorporate them into the spreadsheet.
- The step number and its density reading will be recorded into an Excel spreadsheet. The equations used in the spreadsheet can be found above in the definitions.

Use of continuous tone test images. Using standard test images, a test page will be created and printed at five different gamma curve settings. The image comparison will be conducted as an image to image comparison, not to an original. The CMYK settings in the test images will not be adjusted in Photoshop to SWOP, or any other standard CMYK conversion. International Organization for Standardization (ISO) images will be used because they are internationally recognized test images. These images are highly available so the replication of this investigation is possible. The format of the test images is CMYK

TIFF. The alternate ("A") set to be used in this investigation have a data spacing of 12 pixels per millimeter (or approximately 300 dpi) encoded with digital data of 0 to 255 representing 0% to 100% printing values.

The test image sheet will be comprised of five images: one high key, one low key, and three normal key. The ISO 300 images used are N2A, N4A, N6A, N7A, and N8A. N2A, Cafeteria, is a normal image with complicated geometric shapes. It was chosen because it was taken on a sunny day so there are good memory colors, such as the blue sky. N4A, Wine and Tableware, will be the high key image. N4A is an image of silverware and glassware commonly used to determine the reproduction characteristics of highlight tones and neutral colors. N6A, Orchid, will be used for its high light and shadow vignettes. N7A, Musicians, will be the normal key image. N7A is also important for evaluating reproduction of skin tones. N8, Candle, will be the low key image. Figure 9 shows a small sample of some of the images to be used.

Figure 10

Psychometric test. The final step is a psychometrics test involving two groups of people. Each group will have at minimum 15 people. The results from the second press run will be labeled and mounted. Under standard viewing conditions the participants will be asked to

rank pictures based on what they felt was most appealing reproduction. They will not be shown an original from which to base judgment from, the comparisons will be solely on a print to print basis. The first group will rank which curve setting gives the best overall results. The second group will rank pictures individually. The individual ranking will help determine which setting produces the best visual results for each type (example, high key, low key) of image. See Figure 11for an example of how the two tests will be set up.

The first set of prints will be organized by curve setting. There will be a row of prints corresponding to each curve. The participant will be asked to choose which row has the best overall results. The data collected from this first set of participants will used to determine which is the optimum curve setting when dealing with all types of images (such as high key, low key, normal key).

The second set of prints will be organized by type. For example, there will be a row of high key images and a row of low-key images. The participant will be asked to choose which image in the row is most appealing. The data collected from this second set of participants will be used to determine which is the optimum curve setting for each particular type. This additional knowledge can be used for more sophisticated control over image quality.

The data collected from the first set of participants to find the overall optimum curve setting could later be used in the creation of a press profile. Because the Xeikon DCP/50D is highly versatile and can print a variety of different jobs in one session, an optimum curve setting would ensure the best possible results with the least amount of time invested and the maximum of job flexibility. The data from the second set of participants to find the best curve for each type, could be helpful if similar types of images are always printed. By taking advantage of the repetitive content nature in the print jobs, workflow steps could be minimized and superior quality maintained.

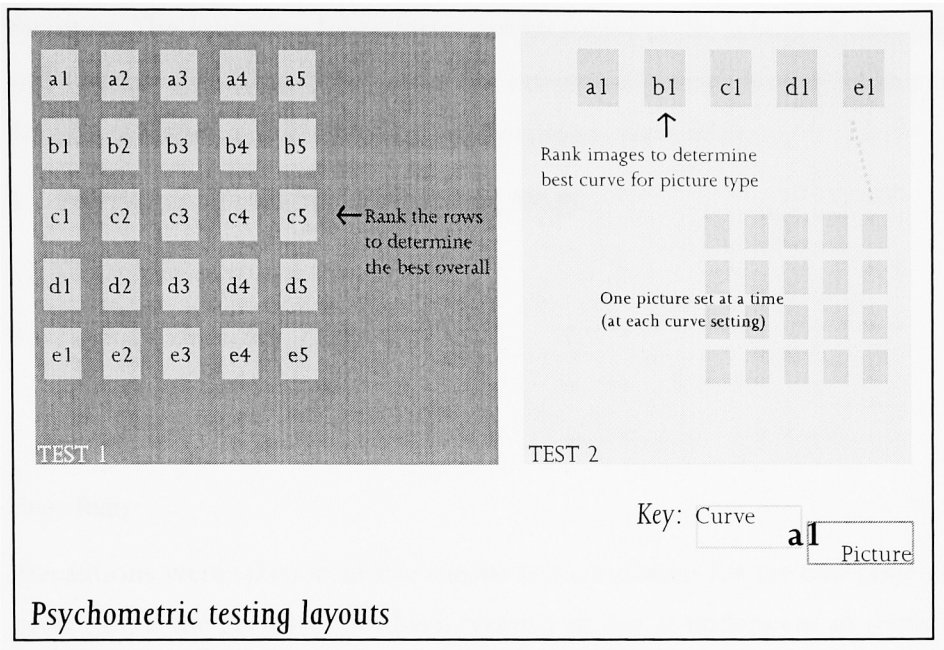


Figure 11

Equipment, and Facilities.

RIP software: Barco Printstream

Printing engine: Xeikon DCP/50D

GEM unit: On (paper temperature, exiting: 125 degrees Celsius)

Substrate: Mohawk 80# glossy text, coated 118GSM

Humidity, Temp, Tension: All within recommended parameters for paper.

File Storage: Iomega ZIP disks, Macintosh Formatted

Software: Quark XPress 4.04, for Macintosh

Facilities: The following laboratories can be found in the School of Printing Management and Sciences (SPMS) and the Center for Integrated Manufacturing Studies (CIMS) at Rochester Institute of Technology, in Rochester, New York:

1. PrePress and Publishing Laboratory, SPMS
2. Color Measurement Lab, SPMS
3. Digital Laboratory, CIMS

Press Runs

Precautions were taken to insure similar test conditions for the two press runs. Before each press run, if the press had not been recently in use, it underwent an initial warm up. After the machine had been run for a recommended period of time, Xeikon control strips were run until target densities were achieved. For optimum results, all files were RIPped and placed in the print queue so that a continuous run could be made.

Dot Gain Curves. The Xeikon control strip was on the bottom of every test sheet so that densities could be maintained/monitored throughout the run by press operator. The same file was RIPped nine times, once for each dot gain setting. The run was of sixty sheets at each setting. The five readings were pulled from approximately the same place in each run, one at the beginning (count number 3), two from the middle (count numbers 25 and 30) and two from the end (count numbers 59 and 60.)

Second Test Sheet of Images. Due to the shorter run length of the second run and limitations of substrate supply, the Xeikon control strip was not included with every file. Instead, the Xeikon control strip was placed after every set of test sheets for the first half of the test settings so that densities could be maintained/monitored throughout the run by press operator. The same file was RIPped five times, once for each of the chosen dot gain settings. The final file consisted of a test sheet of images paired with an 8-bit test target

(so that the dot gain settings could be confirmed for the chosen picture sets.) The final file was run for fifty sheets (fifty sets of test images, fifty sets of test targets) at each setting.

Limitations of the Study

The limitations of this investigation were as follows:

1. The sample population for the psychometric evaluation consisted of people at RIT, in the SPMS program. The result might vary with any other test group.
2. The only system investigated was the Xeikon system with its available RIP functions. The result might vary with new toner developments, newer generations of press or different RIP configurations.
3. The GEM unit was turned on. No testing was done with the GEM turned off, which might effect the image.
4. Only two runs were conducted.
5. Possible low densities may have effected the initial dot gain curve readings.
6. The images were strictly CMYK. No out of gamut colors were included in the image sets.

Chapter 6
Results

Dot Gain Setting Analysis

The purpose of the dot gain setting analysis was to determine the dot gain curves and the transfer curves for each of the dot gain settings available. This foundation is important in verifying the findings of Vacheravothan and in choosing the five appropriate settings for the image test sheet.

Five test sheets from each curve setting were analyzed, for a total of forty-five sheets. The absolute density reading was taken by the same densitometer for all test sheets. The test sheets were stored in plastic bags, in a box, to shield them from light, temperature and humidity. The results of the readings were placed into a spreadsheet to calculate reflectance, tonal response, relative drive, and tonal gain. A dot gain curve and a transfer curve were plotted from each set of readings and from the averages of each color. The results for the nine settings are as follows: (please see Figures 12–14, on the following pages, for the average curves. For each curve and color analysis please see Appendix B.)

Readings from Dot Gain Analysis. The dot gain setting analysis was conducted individually for each color and each chart. The dot gain setting analysis was conducted using the 8-Bit Step chart. Each color was read and recorded, the averages for each color and setting are included below.

The readings from the -5% setting:

-5% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.062	3	0.867	0.000	0.000	0.000
0.080	17	0.832	4.305	5.556	-1.250
0.106	31	0.783	10.218	11.111	-0.893
0.120	45	0.759	13.258	16.667	-3.409
0.140	59	0.724	17.434	22.222	-4.789
0.162	73	0.689	21.811	27.778	-5.967
0.190	87	0.646	27.070	33.333	-6.263
0.208	101	0.619	30.277	38.889	-8.612
0.246	115	0.568	36.625	44.444	-7.820
0.276	129	0.530	41.258	50.000	-8.742
0.314	143	0.485	46.686	55.556	-8.869
0.354	157	0.443	51.909	61.111	-9.202
0.398	171	0.400	57.125	66.667	-9.541
0.458	185	0.348	63.438	72.222	-8.784
0.530	199	0.295	69.947	77.778	-7.830
0.628	213	0.236	77.240	83.333	-6.094
0.724	227	0.189	82.953	88.889	-5.936
0.870	241	0.135	89.546	94.444	-4.899
1.306	255	0.049	100.000	100.000	0.000

-5% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.058	3	0.875	0.000	0.000	0.000
0.062	17	0.867	0.949	5.556	-4.606
0.082	31	0.828	5.567	11.111	-5.544
0.116	45	0.766	12.944	16.667	-3.722
0.142	59	0.721	18.209	22.222	-4.013
0.164	73	0.685	22.424	27.778	-5.354
0.186	87	0.652	26.431	33.333	-6.903
0.218	101	0.605	31.908	38.889	-6.981
0.250	115	0.562	36.996	44.444	-7.448
0.280	129	0.525	41.438	50.000	-8.562
0.310	143	0.490	45.583	55.556	-9.972
0.360	157	0.437	51.886	61.111	-9.225
0.406	171	0.393	57.077	66.667	-9.589
0.478	185	0.333	64.176	72.222	-8.046
0.556	199	0.278	70.647	77.778	-7.131
0.660	213	0.219	77.652	83.333	-5.681
0.790	227	0.162	84.349	88.889	-4.540
1.054	241	0.088	93.091	94.444	-1.353
1.524	255	0.030	100.000	100.000	0.000

-5% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.068	17	0.855	1.954	5.556	-3.601
0.088	31	0.817	6.686	11.111	-4.426
0.116	45	0.766	12.954	16.667	-3.713
0.130	59	0.741	15.939	22.222	-6.283
0.156	73	0.698	21.235	27.778	-6.543
0.180	87	0.661	25.850	33.333	-7.483
0.202	101	0.628	29.862	38.889	-9.027
0.234	115	0.583	35.347	44.444	-9.098
0.268	129	0.540	40.748	50.000	-9.252
0.302	143	0.499	45.743	55.556	-9.813
0.342	157	0.455	51.139	61.111	-9.972
0.388	171	0.409	56.761	66.667	-9.906
0.436	185	0.366	62.025	72.222	-10.197
0.502	199	0.315	68.377	77.778	-9.401
0.576	213	0.265	74.439	83.333	-8.894
0.682	227	0.208	81.507	88.889	-7.382
0.822	241	0.151	88.552	94.444	-5.892
1.240	255	0.058	100.000	100.000	0.000

-5% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.056	3	0.879	0.000	0.000	0.000
0.076	17	0.839	5.274	5.556	-0.282
0.100	31	0.794	11.290	11.111	0.178
0.120	45	0.759	16.055	16.667	-0.612
0.138	59	0.728	20.160	22.222	-2.062
0.160	73	0.692	24.952	27.778	-2.825
0.178	87	0.664	28.696	33.333	-4.637
0.204	101	0.625	33.838	38.889	-5.051
0.240	115	0.575	40.467	44.444	-3.977
0.264	129	0.545	44.591	50.000	-5.409
0.284	143	0.520	47.858	55.556	-7.698
0.316	157	0.483	52.781	61.111	-8.330
0.358	171	0.439	58.717	66.667	-7.950
0.398	185	0.400	63.860	72.222	-8.362
0.448	199	0.356	69.658	77.778	-8.120
0.518	213	0.303	76.731	83.333	-6.602
0.606	227	0.248	84.149	88.889	-4.740
0.700	241	0.200	90.576	94.444	-3.869
0.890	255	0.129	100.000	100.000	0.000

Table Set 1

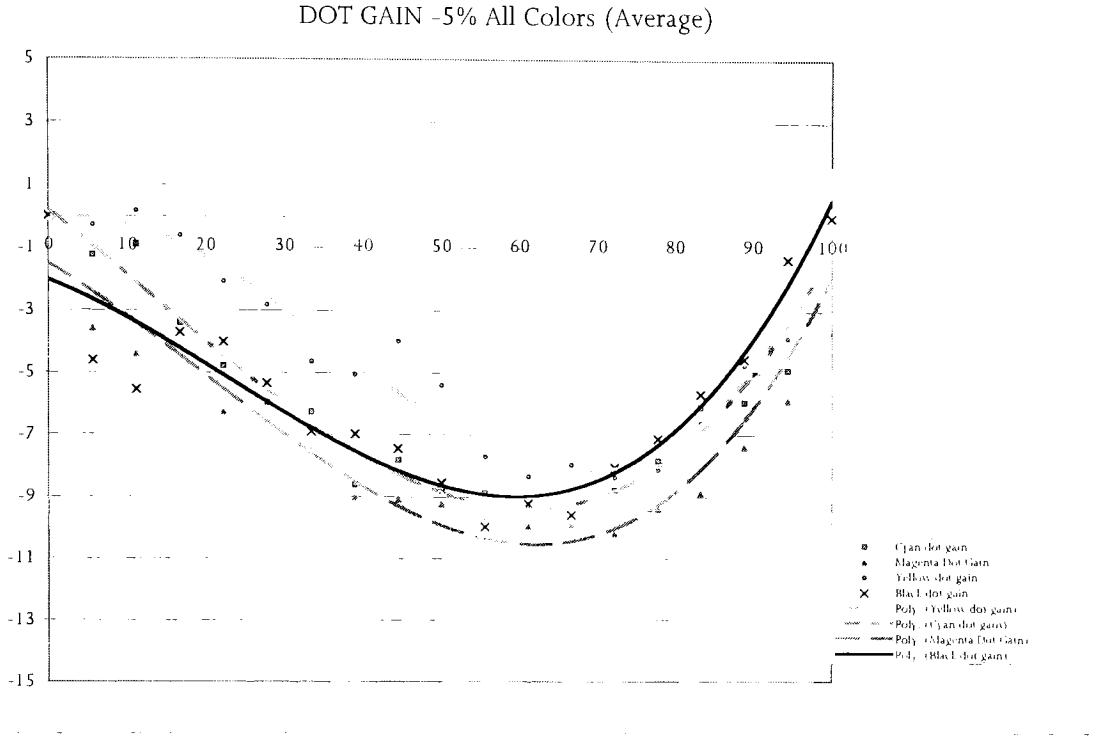


Figure 12

As seen in the Table Set 1, the "negative" dot gain is occurring. This sharpening effect creates a negative dot gain curve, which can be seen in Figure 12. The amount of negative gain/sharpening is slightly more than anticipated. For magenta, its peak is over the -10% mark of measured value. Yellow has the closest to -5%, which was the anticipated curve.

The readings from the Average 0% setting:

0% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.064	3	0.863	0.000	0.000	0.000
0.080	17	0.832	3.838	5.556	-1.718
0.100	31	0.794	8.441	11.111	-2.670
0.130	45	0.741	14.959	16.667	-1.707
0.142	59	0.721	17.443	22.222	-4.779
0.168	73	0.679	22.596	27.778	-5.182
0.200	87	0.631	28.528	33.333	-4.806
0.222	101	0.600	32.360	38.889	-6.529
0.260	115	0.550	38.538	44.444	-5.906
0.284	129	0.520	42.171	50.000	-7.829
0.338	143	0.459	49.646	55.556	-5.910
0.386	157	0.411	55.554	61.111	-5.557
0.448	171	0.356	62.279	66.667	-4.388
0.498	185	0.318	67.045	72.222	-5.177
0.580	199	0.263	73.766	77.778	-4.012
0.658	213	0.220	79.082	83.333	-4.251
0.764	227	0.172	84.935	88.889	-3.954
0.954	241	0.111	92.437	94.444	-2.008
1.304	255	0.050	100.000	100.000	0.000

0% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.058	3	0.875	0.000	0.000	0.000
0.058	17	0.875	0.000	5.556	-5.556
0.076	31	0.839	4.191	11.111	-6.920
0.124	45	0.752	14.555	16.667	-2.112
0.132	59	0.738	16.173	22.222	-6.049
0.162	73	0.689	21.984	27.778	-5.794
0.192	87	0.643	27.407	33.333	-5.926
0.216	101	0.608	31.484	38.889	-7.405
0.254	115	0.557	37.495	44.444	-6.949
0.282	129	0.522	41.600	50.000	-8.400
0.332	143	0.466	48.303	55.556	-7.253
0.376	157	0.421	53.595	61.111	-7.516
0.430	171	0.372	59.399	66.667	-7.267
0.494	185	0.321	65.406	72.222	-6.817
0.582	199	0.262	72.344	77.778	-5.434
0.674	213	0.212	78.241	83.333	-5.092
0.806	227	0.156	84.792	88.889	-4.097
1.074	241	0.084	93.285	94.444	-1.160
1.562	255	0.027	100.000	100.000	0.000

0% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.066	17	0.859	1.471	5.556	-4.085
0.090	31	0.813	7.156	11.111	-3.955
0.112	45	0.773	12.099	16.667	-4.568
0.134	59	0.735	16.797	22.222	-5.425
0.156	73	0.698	21.263	27.778	-6.515
0.182	87	0.658	26.258	33.333	-7.075
0.212	101	0.614	31.661	38.889	-7.227
0.248	115	0.565	37.672	44.444	-6.773
0.282	129	0.522	42.909	50.000	-7.091
0.328	143	0.470	49.372	55.556	-6.184
0.376	157	0.421	55.424	61.111	-5.687
0.424	171	0.377	60.843	66.667	-5.823
0.476	185	0.334	66.076	72.222	-6.146
0.536	199	0.291	71.385	77.778	-6.393
0.624	213	0.238	77.957	83.333	-5.377
0.716	227	0.192	83.542	88.889	-5.347
0.874	241	0.134	90.762	94.444	-3.683
1.232	255	0.059	100.000	100.000	0.000

0% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.054	3	0.883	0.000	0.000	0.000
0.066	17	0.859	3.188	5.556	-2.367
0.096	31	0.802	10.784	11.111	-0.327
0.116	45	0.766	15.564	16.667	-1.103
0.136	59	0.731	20.129	22.222	-2.094
0.162	73	0.689	25.757	27.778	-2.021
0.184	87	0.655	30.264	33.333	-3.070
0.208	101	0.619	34.926	38.889	-3.963
0.238	115	0.578	40.403	44.444	-4.041
0.266	129	0.542	45.185	50.000	-4.815
0.296	143	0.506	49.978	55.556	-5.578
0.332	157	0.466	55.308	61.111	-5.803
0.380	171	0.417	61.762	66.667	-4.904
0.420	185	0.380	66.622	72.222	-5.601
0.478	199	0.333	72.918	77.778	-4.860
0.554	213	0.279	79.993	83.333	-3.340
0.646	227	0.226	87.056	88.889	-1.833
0.734	241	0.185	92.546	94.444	-1.899
0.892	255	0.128	100.000	100.000	0.000

Table Set 2

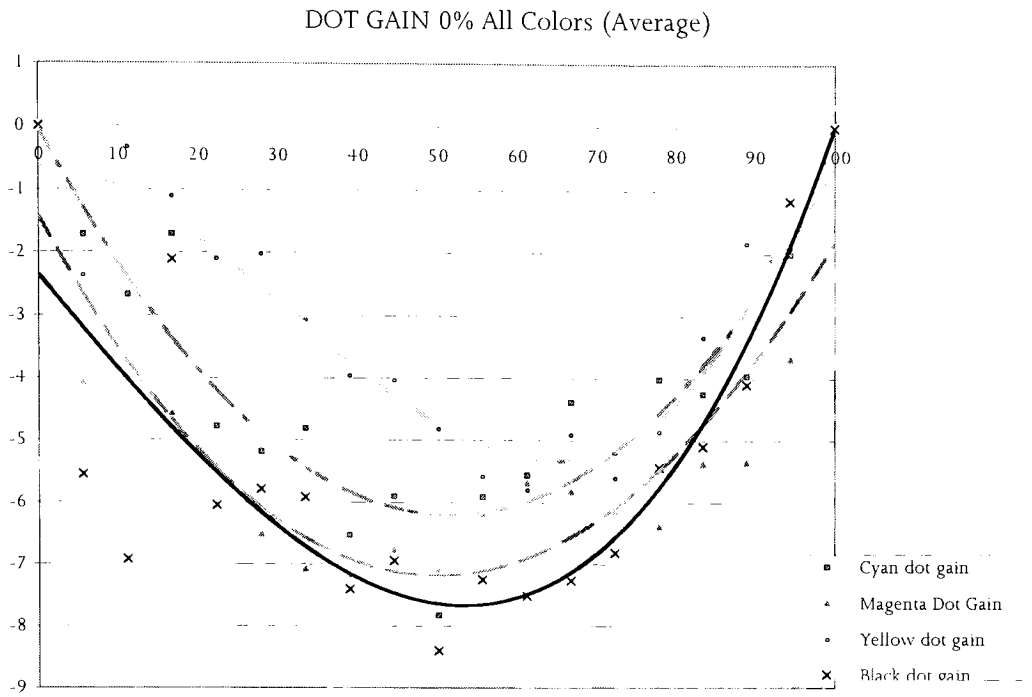


Figure 13

As seen in the Table Set 2, the "negative" dot gain is also occurring at this setting. This sharpening effect creates a negative dot gain curve, which can be seen in Figure 13. The amount of negative gain/sharpening was not anticipated at this setting. For black, its peak is almost at the -8% mark of measured value in the mid-tones. Magenta appears to have a higher gain than most of the other colors in the shadows and quartertones. Yellow has the closest to a neutral curve (little to no gain of any type), which was the anticipated curve for 0%.

The readings from the Average 5% setting:

5% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.064	3	0.863	0.000	0.000	0.000
0.080	17	0.832	3.832	5.556	-1.724
0.104	31	0.787	9.321	11.111	-1.790
0.124	45	0.752	13.669	16.667	-2.998
0.144	59	0.718	17.821	22.222	-4.401
0.162	73	0.689	21.398	27.778	-6.379
0.190	87	0.646	26.676	33.333	-6.657
0.206	101	0.622	29.543	38.889	-9.346
0.242	115	0.573	35.620	44.444	-8.825
0.276	129	0.530	40.914	50.000	-9.086
0.316	143	0.483	46.635	55.556	-8.921
0.352	157	0.445	51.352	61.111	-9.760
0.394	171	0.404	56.383	66.667	-10.284
0.446	185	0.358	61.974	72.222	-10.249
0.526	199	0.298	69.369	77.778	-8.409
0.626	213	0.237	76.888	83.333	-6.445
0.716	227	0.192	82.324	88.889	-6.565
0.856	241	0.139	88.829	94.444	-5.616
1.316	255	0.048	100.000	100.000	0.000

5% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.058	3	0.875	0.000	0.000	0.000
0.058	17	0.875	0.000	5.556	-5.556
0.076	31	0.839	4.201	11.111	-6.910
0.112	45	0.773	12.098	16.667	-4.568
0.136	59	0.731	17.011	22.222	-5.211
0.156	73	0.698	20.902	27.778	-6.875
0.172	87	0.673	23.889	33.333	-9.444
0.200	101	0.631	28.858	38.889	-10.031
0.230	115	0.589	33.838	44.444	-10.606
0.266	129	0.542	39.378	50.000	-10.622
0.284	143	0.520	41.980	55.556	-13.575
0.334	157	0.463	48.668	61.111	-12.444
0.376	171	0.421	53.720	66.667	-12.947
0.442	185	0.361	60.734	72.222	-11.488
0.506	199	0.312	66.591	77.778	-11.187
0.602	213	0.250	73.905	83.333	-9.428
0.706	227	0.197	80.202	88.889	-8.687
0.880	241	0.132	87.885	94.444	-6.560
1.532	255	0.029	100.000	100.000	0.000

5% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.068	17	0.855	1.946	5.556	-3.609
0.090	31	0.813	7.117	11.111	-3.994
0.116	45	0.766	12.901	16.667	-3.766
0.132	59	0.738	16.291	22.222	-5.931
0.158	73	0.695	21.541	27.778	-6.237
0.180	87	0.661	25.744	33.333	-7.589
0.202	101	0.628	29.740	38.889	-9.149
0.234	115	0.583	35.202	44.444	-9.242
0.272	129	0.535	41.187	50.000	-8.813
0.300	143	0.501	45.273	55.556	-10.282
0.338	157	0.459	50.414	61.111	-10.697
0.382	171	0.415	55.831	66.667	-10.835
0.440	185	0.363	62.183	72.222	-10.040
0.494	199	0.321	67.380	77.778	-10.398
0.566	213	0.272	73.377	83.333	-9.956
0.670	227	0.214	80.460	88.889	-8.429
0.806	241	0.156	87.498	94.444	-6.947
1.266	255	0.054	100.000	100.000	0.000

5% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.068	17	0.855	5.151	5.556	-0.404
0.096	31	0.802	12.751	11.111	1.640
0.118	45	0.762	18.389	16.667	1.722
0.134	59	0.735	22.313	22.222	0.091
0.152	73	0.705	26.558	27.778	-1.220
0.178	87	0.664	32.388	33.333	-0.946
0.202	101	0.628	37.468	38.889	-1.421
0.232	115	0.586	43.435	44.444	-1.009
0.258	129	0.552	48.284	50.000	-1.716
0.280	143	0.525	52.166	55.556	-3.389
0.310	157	0.490	57.153	61.111	-3.958
0.350	171	0.447	63.288	66.667	-3.379
0.392	185	0.406	69.150	72.222	-3.073
0.450	199	0.355	76.366	77.778	-1.411
0.510	213	0.309	82.884	83.333	-0.449
0.592	227	0.256	90.454	88.889	1.565
0.698	241	0.200	98.342	94.444	3.897
0.724	255	0.189	100.000	100.000	0.000

Table Set 3

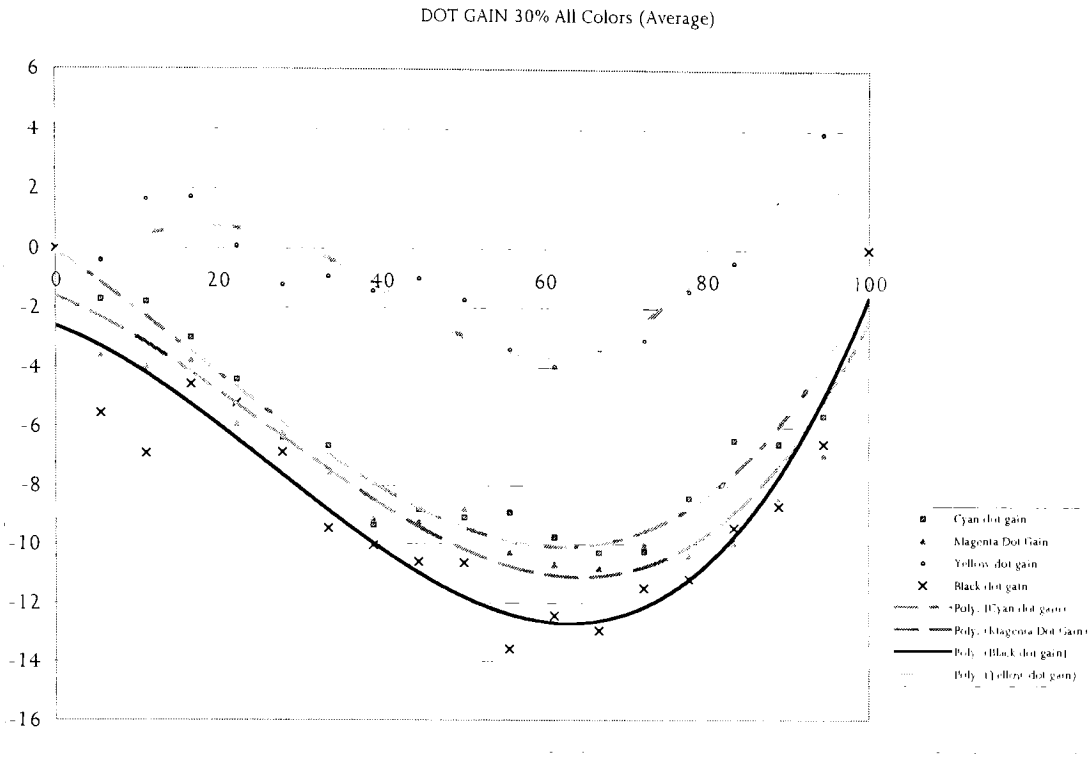


Figure 14

As seen in the Table Set 3, the "negative" dot gain is also occurring at this setting. This primarily negative dot gain curve can be seen in Figure 14. Any amount of negative gain was not anticipated at this setting. This curve was anticipated to have a small amount of positive gain only. For black, its peak is almost at the -13% mark of measured value. Yellow has the closest to the gain curve that was anticipated for 5%, although it is slightly irregular.

The readings from the Average 10% setting:

10% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.086	17	0.820	6.166	5.556	0.610
0.116	31	0.766	12.836	11.111	1.725
0.136	45	0.731	17.034	16.667	0.368
0.168	59	0.679	23.361	22.222	1.139
0.200	73	0.631	29.239	27.778	1.461
0.240	87	0.575	36.002	33.333	2.669
0.276	101	0.530	41.579	38.889	2.690
0.312	115	0.488	46.712	44.444	2.268
0.352	129	0.445	51.938	50.000	1.938
0.408	143	0.391	58.491	55.556	2.936
0.474	157	0.336	65.204	61.111	4.093
0.512	171	0.308	68.631	66.667	1.964
0.592	185	0.256	74.936	72.222	2.713
0.672	199	0.213	80.180	77.778	2.402
0.744	213	0.180	84.140	83.333	0.807
0.872	227	0.134	89.747	88.889	0.859
1.036	241	0.092	94.892	94.444	0.448
1.300	255	0.050	100.000	100.000	0.000

10% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.064	17	0.863	0.949	5.556	-4.606
0.110	31	0.776	11.262	11.111	0.151
0.140	45	0.724	17.422	16.667	0.756
0.166	59	0.682	22.428	22.222	0.205
0.206	73	0.622	29.566	27.778	1.788
0.246	87	0.568	36.077	33.333	2.743
0.288	101	0.515	42.297	38.889	3.408
0.314	115	0.485	45.857	44.444	1.412
0.364	129	0.433	52.132	50.000	2.132
0.400	143	0.398	56.223	55.556	0.667
0.470	157	0.339	63.269	61.111	2.158
0.538	171	0.290	69.108	66.667	2.442
0.616	185	0.242	74.772	72.222	2.549
0.710	199	0.195	80.374	77.778	2.596
0.810	213	0.155	85.142	83.333	1.809
0.980	227	0.105	91.107	88.889	2.219
1.178	241	0.066	95.666	94.444	1.221
1.524	255	0.030	100.000	100.000	0.000

10% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.076	17	0.839	3.882	5.556	-1.674
0.110	31	0.776	11.671	11.111	0.560
0.130	45	0.741	15.976	16.667	-0.690
0.166	59	0.682	23.243	22.222	1.021
0.190	73	0.646	27.763	27.778	-0.014
0.232	87	0.586	35.097	33.333	1.764
0.272	101	0.535	41.452	38.889	2.563
0.302	115	0.499	45.849	44.444	1.404
0.350	129	0.447	52.281	50.000	2.281
0.400	143	0.398	58.267	55.556	2.711
0.460	157	0.347	64.597	61.111	3.486
0.502	171	0.315	68.535	66.667	1.869
0.580	185	0.263	74.912	72.222	2.690
0.652	199	0.223	79.864	77.778	2.086
0.716	213	0.192	83.626	83.333	0.293
0.846	227	0.143	89.756	88.889	0.867
0.974	241	0.106	94.240	94.444	-0.204
1.226	255	0.059	100.000	100.000	0.000

10% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.052	3	0.887	0.000	0.000	0.000
0.080	17	0.832	7.345	5.556	1.790
0.112	31	0.773	15.180	11.111	4.069
0.136	45	0.731	20.689	16.667	4.022
0.164	59	0.685	26.742	22.222	4.520
0.194	73	0.640	32.810	27.778	5.032
0.226	87	0.594	38.836	33.333	5.502
0.254	101	0.557	43.756	38.889	4.867
0.284	115	0.520	48.688	44.444	4.243
0.322	129	0.476	54.465	50.000	4.465
0.362	143	0.435	60.024	55.556	4.468
0.402	157	0.396	65.094	61.111	3.983
0.446	171	0.358	70.157	66.667	3.490
0.506	185	0.312	76.284	72.222	4.062
0.562	199	0.274	81.288	77.778	3.510
0.644	213	0.227	87.543	83.333	4.209
0.712	227	0.194	91.905	88.889	3.016
0.784	241	0.164	95.837	94.444	1.393
0.876	255	0.133	100.000	100.000	0.000

Table Set 4

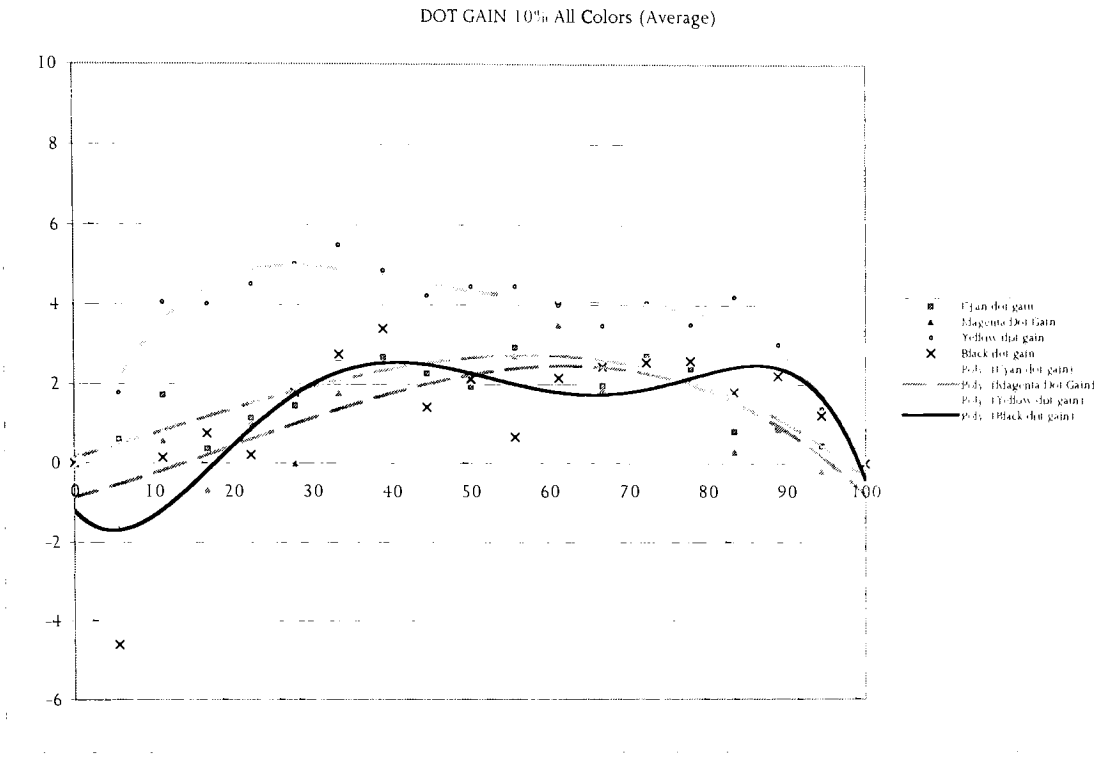


Figure 15

As seen in the Table Set 4, the positive dot gain is occurring. This dot gain curve, can be seen in Figure 15. The amount of gain is slightly less than anticipated. Magenta barely peaks over the 2% mark of measured value. Although Yellow had the most overall gain (closer to what was anticipated,) its curve was slightly irregular. Yellow experiences the highest amount of dot gain in around the quartertones instead of the mid-tones. Black also follows a similar path to the yellow, but less overall gain and more pronounced differences. Cyan and Magenta have more normal dot gain curves, with the highest amount, around 2%, of gain falling in the mid-tones.

The readings from the Average 15% setting:

15% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.064	3	0.863	0.000	0.000	0.000
0.100	17	0.794	8.389	5.556	2.834
0.132	31	0.738	15.284	11.111	4.173
0.160	45	0.692	20.915	16.667	4.248
0.202	59	0.628	28.708	22.222	6.486
0.232	73	0.586	33.831	27.778	6.053
0.272	87	0.535	40.133	33.333	6.800
0.320	101	0.479	46.969	38.889	8.080
0.366	115	0.431	52.847	44.444	8.403
0.428	129	0.373	59.846	50.000	9.846
0.488	143	0.325	65.732	55.556	10.176
0.526	157	0.298	69.060	61.111	7.949
0.578	171	0.264	73.168	66.667	6.501
0.656	185	0.221	78.476	72.222	6.254
0.728	199	0.187	82.598	77.778	4.821
0.836	213	0.146	87.631	83.333	4.298
0.954	227	0.111	91.873	88.889	2.984
1.132	241	0.074	96.441	94.444	1.997
1.350	255	0.045	100.000	100.000	0.000

15% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.058	3	0.875	0.000	0.000	0.000
0.074	17	0.843	3.728	5.556	-1.827
0.128	31	0.745	15.343	11.111	4.232
0.152	45	0.705	20.060	16.667	3.393
0.192	59	0.643	27.364	22.222	5.141
0.230	73	0.589	33.706	27.778	5.929
0.272	87	0.535	40.100	33.333	6.767
0.300	101	0.501	44.032	38.889	5.143
0.342	115	0.455	49.474	44.444	5.030
0.396	129	0.402	55.740	50.000	5.740
0.442	143	0.361	60.497	55.556	4.942
0.512	157	0.308	66.835	61.111	5.724
0.566	171	0.272	71.071	66.667	4.405
0.658	185	0.220	77.180	72.222	4.958
0.736	199	0.184	81.436	77.778	3.658
0.876	213	0.133	87.398	83.333	4.064
1.030	227	0.093	92.077	88.889	3.188
1.280	241	0.052	96.888	94.444	2.443
1.584	255	0.026	100.000	100.000	0.000

15% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.035	5.556	1.480
0.128	31	0.745	15.277	11.111	4.166
0.158	45	0.695	21.293	16.667	4.626
0.190	59	0.646	27.267	22.222	5.045
0.230	73	0.589	34.143	27.778	6.365
0.272	87	0.535	40.712	33.333	7.378
0.314	101	0.485	46.675	38.889	7.786
0.348	115	0.449	51.098	44.444	6.653
0.404	129	0.394	57.668	50.000	7.668
0.456	143	0.350	63.055	55.556	7.499
0.508	157	0.310	67.834	61.111	6.723
0.564	171	0.273	72.379	66.667	5.713
0.646	185	0.226	78.062	72.222	5.839
0.716	199	0.192	82.132	77.778	4.354
0.812	213	0.154	86.748	83.333	3.415
0.924	227	0.119	90.989	88.889	2.100
1.082	241	0.083	95.386	94.444	0.941
1.350	255	0.045	100.000	100.000	0.000

15% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.046	3	0.899	0.000	0.000	0.000
0.088	17	0.817	10.686	5.556	5.131
0.120	31	0.759	18.162	11.111	7.051
0.156	45	0.698	25.939	16.667	9.273
0.184	59	0.655	31.558	22.222	9.336
0.220	73	0.603	38.270	27.778	10.492
0.252	87	0.560	43.786	33.333	10.453
0.278	101	0.527	47.979	38.889	9.090
0.314	115	0.485	53.384	44.444	8.940
0.354	129	0.443	58.887	50.000	8.887
0.402	143	0.396	64.856	55.556	9.300
0.440	157	0.363	69.135	61.111	8.024
0.494	171	0.321	74.606	66.667	7.939
0.554	185	0.279	79.938	72.222	7.716
0.616	199	0.242	84.726	77.778	6.949
0.684	213	0.207	89.249	83.333	5.915
0.770	227	0.170	94.042	88.889	5.153
0.828	241	0.149	96.778	94.444	2.334
0.908	255	0.124	100.000	100.000	0.000

Table Set 5

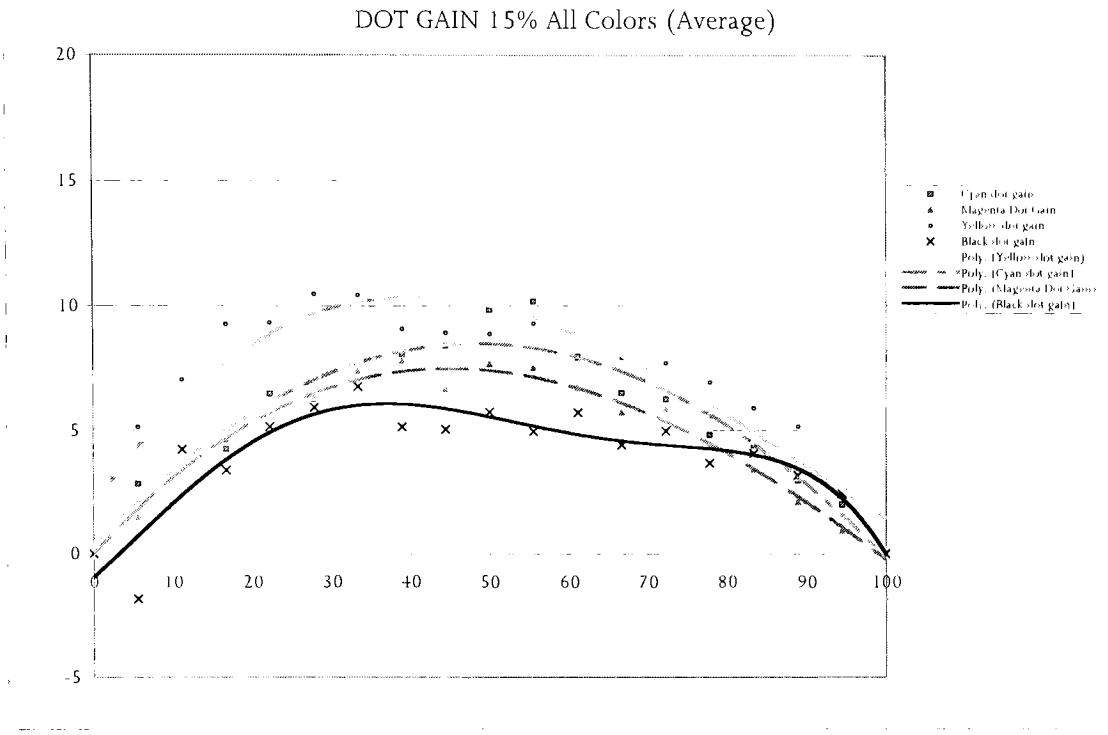


Figure 16

As seen in the Table Set 5, dot gain is occurring. This dot gain curve can be seen in Figure 16. The amount of gain is slightly less than anticipated, although close. Black has the least amount of dot gain. Black peaks close to 10% mark of measured value in its mid-tones. Yellow has highest amount of gain, just over 10% at its highest point in the mid-tones.

The readings from the Average 20% setting:

20% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.066	3	0.859	0.000	0.000	0.000
0.110	17	0.776	10.232	5.556	4.676
0.140	31	0.724	16.637	11.111	5.526
0.176	45	0.667	23.762	16.667	7.095
0.218	59	0.605	31.360	22.222	9.138
0.262	73	0.547	38.571	27.778	10.793
0.300	87	0.501	44.236	33.333	10.903
0.356	101	0.441	51.732	38.889	12.843
0.408	115	0.391	57.878	44.444	13.434
0.462	129	0.345	63.527	50.000	13.527
0.524	143	0.299	69.204	55.556	13.648
0.572	157	0.268	73.075	61.111	11.963
0.626	171	0.237	76.947	66.667	10.280
0.698	185	0.200	81.416	72.222	9.193
0.786	199	0.164	85.961	77.778	8.183
0.870	213	0.135	89.519	83.333	6.186
0.990	227	0.102	93.545	88.889	4.657
1.142	241	0.072	97.281	94.444	2.837
1.300	255	0.050	100.000	100.000	0.000

20% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.052	3	0.887	0.000	0.000	0.000
0.080	17	0.832	6.464	5.556	0.908
0.130	31	0.741	17.019	11.111	5.908
0.170	45	0.676	24.631	16.667	7.964
0.212	59	0.614	31.903	22.222	9.681
0.262	73	0.547	39.692	27.778	11.914
0.300	87	0.501	45.039	33.333	11.706
0.344	101	0.453	50.675	38.889	11.786
0.396	115	0.402	56.638	44.444	12.194
0.450	129	0.355	62.120	50.000	12.120
0.502	143	0.315	66.792	55.556	11.237
0.578	157	0.264	72.689	61.111	11.578
0.640	171	0.229	76.791	66.667	10.125
0.750	185	0.178	82.773	72.222	10.551
0.848	199	0.142	86.965	77.778	9.187
0.986	213	0.103	91.473	83.333	8.139
1.168	227	0.068	95.598	88.889	6.709
1.340	241	0.046	98.190	94.444	3.746
1.520	255	0.030	100.000	100.000	0.000

20% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.100	17	0.794	9.400	5.556	3.845
0.136	31	0.731	17.151	11.111	6.040
0.174	45	0.670	24.665	16.667	7.998
0.208	59	0.619	30.852	22.222	8.630
0.254	73	0.557	38.489	27.778	10.711
0.286	87	0.518	43.344	33.333	10.010
0.340	101	0.457	50.767	38.889	11.878
0.386	115	0.411	56.402	44.444	11.957
0.438	129	0.365	62.093	50.000	12.093
0.494	143	0.321	67.506	55.556	11.950
0.538	157	0.290	71.295	61.111	10.184
0.600	171	0.251	76.023	66.667	9.356
0.676	185	0.211	80.970	72.222	8.747
0.754	199	0.176	85.222	77.778	7.444
0.838	213	0.145	89.023	83.333	5.689
0.944	227	0.114	92.880	88.889	3.991
1.098	241	0.080	97.046	94.444	2.602
1.254	255	0.056	100.000	100.000	0.000

20% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.048	3	0.895	0.000	0.000	0.000
0.100	17	0.794	13.171	5.556	7.615
0.132	31	0.738	20.526	11.111	9.415
0.182	45	0.658	30.986	16.667	14.320
0.208	59	0.619	35.968	22.222	13.746
0.234	73	0.583	40.661	27.778	12.883
0.280	87	0.525	48.304	33.333	14.971
0.304	101	0.497	51.982	38.889	13.093
0.344	115	0.453	57.678	44.444	13.234
0.394	129	0.404	64.098	50.000	14.098
0.430	143	0.372	68.284	55.556	12.729
0.474	157	0.336	72.951	61.111	11.839
0.530	171	0.295	78.245	66.667	11.579
0.590	185	0.257	83.209	72.222	10.987
0.648	199	0.225	87.398	77.778	9.620
0.706	213	0.197	91.063	83.333	7.730
0.788	227	0.163	95.477	88.889	6.588
0.834	241	0.147	97.612	94.444	3.167
0.892	255	0.128	100.000	100.000	0.000

Table Set 6

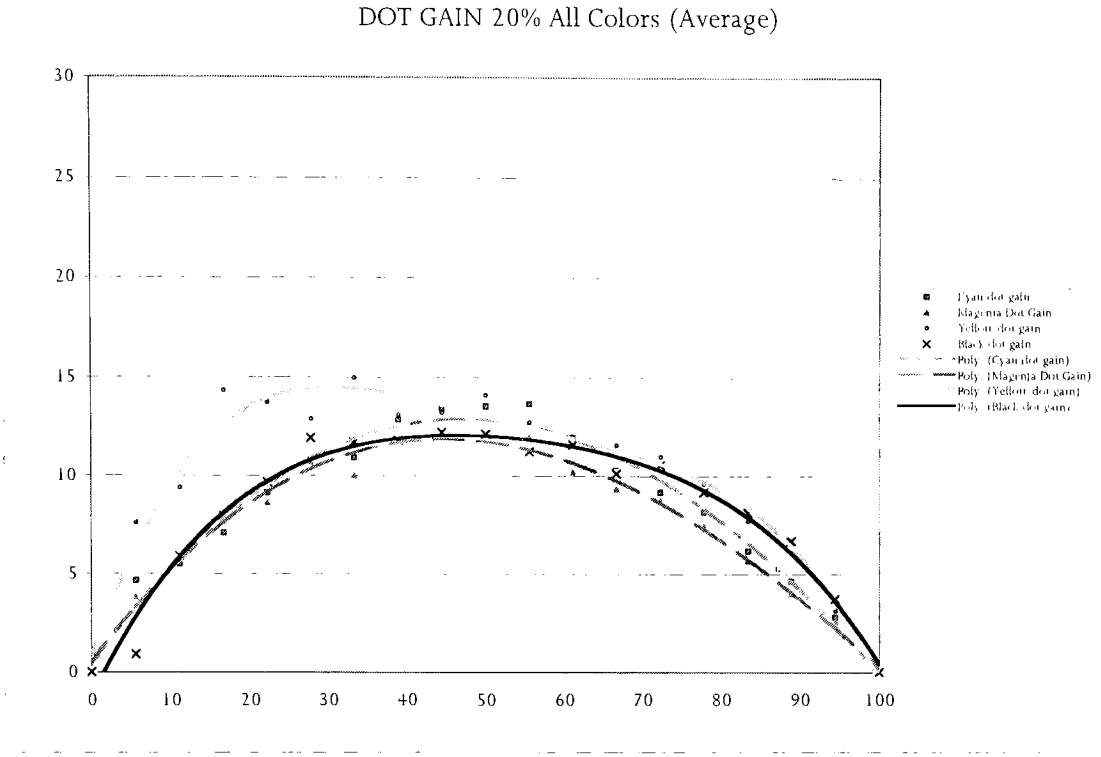


Figure 17

As seen in the Table Set 4, the positive dot gain is occurring. This dot gain curve, can be seen in Figure 17. The amount of gain is less than anticipated. Yellow has a slightly irregular dot gain curve. It has its most gain in the quartertones instead of the mid-tones. Yellow also has the highest overall gain at the 20% setting. Magenta has the lowest overall dot gain, especially in the shadows and quartertones.

The readings from the Average 25% setting:

25% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.062	3	0.867	0.000	0.000	0.000
0.120	17	0.759	13.261	5.556	7.706
0.170	31	0.676	23.355	11.111	12.244
0.208	45	0.619	30.285	16.667	13.618
0.252	59	0.560	37.588	22.222	15.365
0.288	73	0.515	43.036	27.778	15.258
0.352	87	0.445	51.674	33.333	18.340
0.394	101	0.404	56.688	38.889	17.800
0.450	115	0.355	62.663	44.444	18.219
0.516	129	0.305	68.784	50.000	18.784
0.560	143	0.275	72.377	55.556	16.821
0.626	157	0.237	77.128	61.111	16.017
0.690	171	0.204	81.095	66.667	14.428
0.742	185	0.181	83.914	72.222	11.691
0.830	199	0.148	87.979	77.778	10.201
0.934	213	0.116	91.832	83.333	8.499
1.022	227	0.095	94.445	88.889	5.556
1.176	241	0.067	97.917	94.444	3.473
1.304	255	0.050	100.000	100.000	0.000

25% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.052	3	0.887	0.000	0.000	0.000
0.100	17	0.794	10.832	5.556	5.277
0.142	31	0.721	19.377	11.111	8.265
0.190	45	0.646	28.181	16.667	11.515
0.240	59	0.575	36.375	22.222	14.153
0.280	73	0.525	42.283	27.778	14.505
0.330	87	0.468	48.943	33.333	15.610
0.378	101	0.419	54.654	38.889	15.765
0.436	115	0.366	60.764	44.444	16.319
0.488	129	0.325	65.589	50.000	15.589
0.546	143	0.284	70.331	55.556	14.776
0.620	157	0.240	75.532	61.111	14.420
0.710	171	0.195	80.771	66.667	14.104
0.792	185	0.161	84.686	72.222	12.464
0.912	199	0.122	89.234	77.778	11.456
1.082	213	0.083	93.863	83.333	10.529
1.204	227	0.063	96.229	88.889	7.340
1.364	241	0.043	98.477	94.444	4.033
1.520	255	0.030	100.000	100.000	0.000

25% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.116	17	0.766	12.937	5.556	7.381
0.160	31	0.692	21.994	11.111	10.883
0.194	45	0.640	28.390	16.667	11.723
0.240	59	0.575	36.284	22.222	14.062
0.292	73	0.511	44.257	27.778	16.479
0.336	87	0.461	50.296	33.333	16.963
0.386	101	0.411	56.456	38.889	17.567
0.424	115	0.377	60.685	44.444	16.240
0.480	129	0.331	66.280	50.000	16.280
0.520	143	0.302	69.858	55.556	14.302
0.588	157	0.258	75.231	61.111	14.120
0.670	171	0.214	80.687	66.667	14.020
0.716	185	0.192	83.325	72.222	11.102
0.792	199	0.161	87.115	77.778	9.338
0.878	213	0.132	90.676	83.333	7.343
0.976	227	0.106	93.961	88.889	5.072
1.096	241	0.080	97.093	94.444	2.649
1.248	255	0.056	100.000	100.000	0.000

25% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.052	3	0.887	0.000	0.000	0.000
0.112	17	0.773	15.108	5.556	9.552
0.160	31	0.692	25.777	11.111	14.666
0.196	45	0.637	33.041	16.667	16.374
0.228	59	0.592	39.010	22.222	16.788
0.268	73	0.540	45.879	27.778	18.102
0.306	87	0.494	51.845	33.333	18.511
0.338	101	0.459	56.478	38.889	17.590
0.384	115	0.413	62.569	44.444	18.125
0.420	129	0.380	66.905	50.000	16.905
0.478	143	0.333	73.178	55.556	17.622
0.528	157	0.296	77.952	61.111	16.841
0.574	171	0.267	81.885	66.667	15.218
0.644	185	0.227	87.124	72.222	14.902
0.690	199	0.204	90.135	77.778	12.357
0.746	213	0.179	93.394	83.333	10.061
0.804	227	0.157	96.355	88.889	7.466
0.846	241	0.143	98.266	94.444	3.821
0.888	255	0.129	100.000	100.000	0.000

Table Set 7

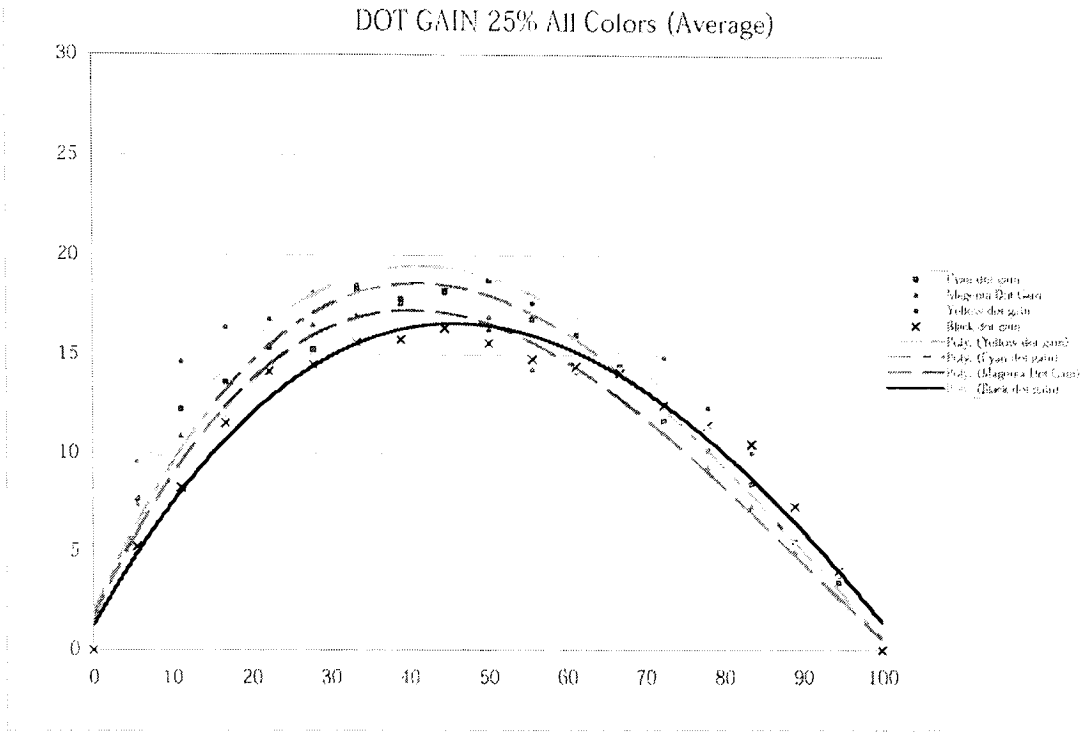


Figure 18

As seen in the Table Set 7, the positive dot gain is occurring. This dot gain curve, can be seen in Figure 18. The amount of gain is slightly less than anticipated. All the colors are fairly close in the amount of gain measured. The black color has the least amount of dot gain for the highlights to mid-tones, while magenta has the least amount of gain in the quartertones and shadows.

The readings from the Average 30% setting:

30% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.068	3	0.855	0.000	0.000	0.000
0.140	17	0.724	16.196	5.556	10.641
0.186	31	0.652	25.224	11.111	14.113
0.232	45	0.586	33.344	16.667	16.677
0.284	59	0.520	41.544	22.222	19.322
0.330	73	0.468	48.024	27.778	20.246
0.394	87	0.404	55.970	33.333	22.637
0.442	101	0.361	61.207	38.889	22.318
0.510	115	0.309	67.701	44.444	23.257
0.560	129	0.275	71.868	50.000	21.868
0.620	143	0.240	76.275	55.556	20.719
0.680	157	0.209	80.112	61.111	19.001
0.720	171	0.191	82.392	66.667	15.725
0.794	185	0.161	86.093	72.222	13.871
0.874	199	0.134	89.445	77.778	11.667
0.972	213	0.107	92.793	83.333	9.459
1.062	227	0.087	95.268	88.889	6.379
1.186	241	0.065	97.938	94.444	3.493
1.314	255	0.049	100.000	100.000	0.000

30% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.056	3	0.879	0.000	0.000	0.000
0.122	17	0.755	14.615	5.556	9.059
0.172	31	0.673	24.299	11.111	13.187
0.228	45	0.592	33.900	16.667	17.233
0.282	59	0.522	42.056	22.222	19.834
0.338	73	0.459	49.509	27.778	21.731
0.380	87	0.417	54.501	33.333	21.167
0.440	101	0.363	60.844	38.889	21.955
0.488	115	0.325	65.324	44.444	20.880
0.560	129	0.275	71.181	50.000	21.181
0.596	143	0.254	73.765	55.556	18.209
0.682	157	0.208	79.136	61.111	18.025
0.760	171	0.174	83.168	66.667	16.501
0.856	185	0.139	87.232	72.222	15.010
0.970	199	0.107	91.025	77.778	13.247
1.108	213	0.078	94.465	83.333	11.131
1.202	227	0.063	96.255	88.889	7.366
1.366	241	0.043	98.584	94.444	4.140
1.508	255	0.031	100.000	100.000	0.000

30% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.062	3	0.867	0.000	0.000	0.000
0.126	17	0.748	14.681	5.556	9.126
0.178	31	0.664	25.115	11.111	14.004
0.222	45	0.600	33.019	16.667	16.352
0.274	59	0.532	41.383	22.222	19.161
0.322	73	0.476	48.264	27.778	20.486
0.374	87	0.423	54.908	33.333	21.575
0.420	101	0.380	60.158	38.889	21.269
0.480	115	0.331	66.221	44.444	21.777
0.508	129	0.310	68.776	50.000	18.776
0.576	143	0.265	74.337	55.556	18.782
0.642	157	0.228	78.963	61.111	17.851
0.696	171	0.201	82.258	66.667	15.591
0.758	185	0.175	85.569	72.222	13.346
0.834	199	0.147	89.032	77.778	11.255
0.898	213	0.126	91.514	83.333	8.181
1.008	227	0.098	95.011	88.889	6.123
1.126	241	0.075	97.898	94.444	3.454
1.238	255	0.058	100.000	100.000	0.000

30% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.126	17	0.748	18.841	5.556	13.285
0.176	31	0.667	29.554	11.111	18.443
0.218	45	0.605	37.648	16.667	20.982
0.250	59	0.562	43.310	22.222	21.088
0.294	73	0.508	50.445	27.778	22.667
0.336	87	0.461	56.613	33.333	23.280
0.372	101	0.425	61.445	38.889	22.556
0.412	115	0.387	66.365	44.444	21.921
0.472	129	0.337	72.945	50.000	22.945
0.514	143	0.306	77.039	55.556	21.484
0.556	157	0.278	80.756	61.111	19.645
0.606	171	0.248	84.736	66.667	18.070
0.672	185	0.213	89.336	72.222	17.113
0.702	199	0.199	91.206	77.778	13.428
0.760	213	0.174	94.476	83.333	11.142
0.814	227	0.153	97.151	88.889	8.262
0.844	241	0.143	98.500	94.444	4.055
0.880	255	0.132	100.000	100.000	0.000

Table Set 8

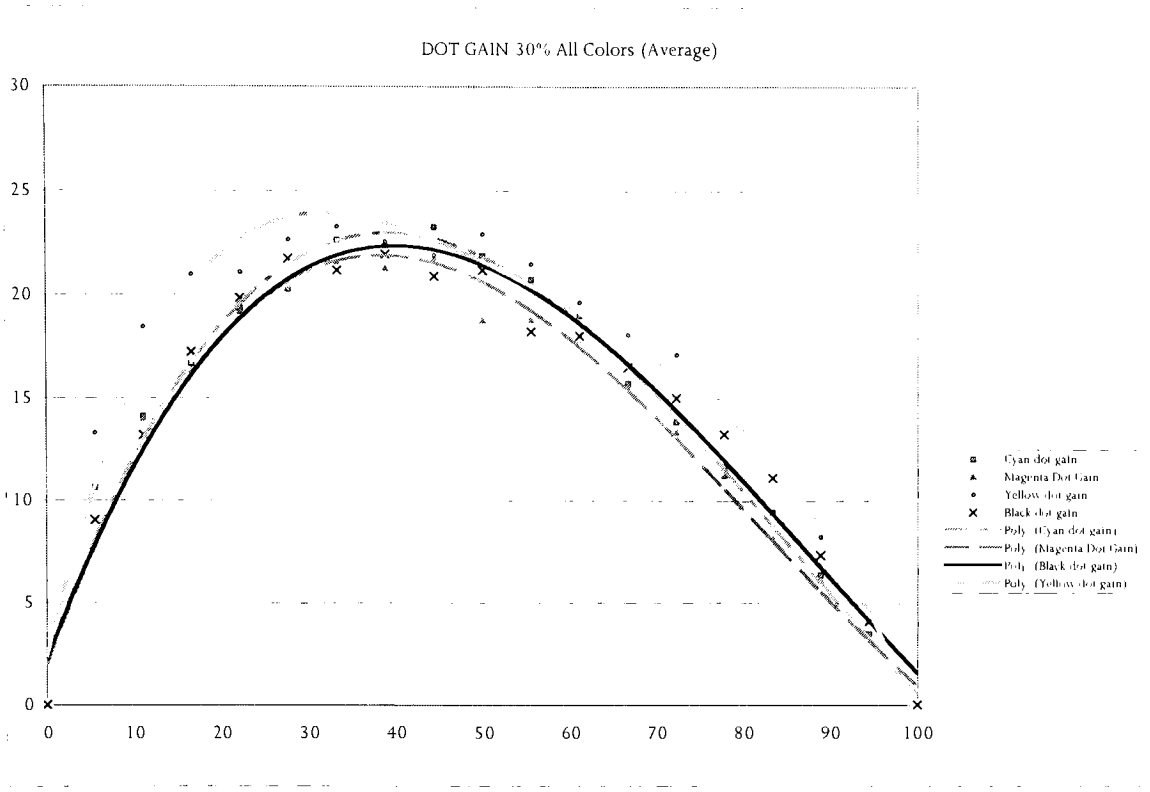


Figure 19

As seen in the Table Set 8, the positive dot gain is occurring. This dot gain curve, can be seen in Figure 20. The amount of gain is slightly less than anticipated. Again, the amount of overall gain for the four colors is slightly less than anticipated. Yellow seems to have the heaviest gain in the quartertones. Magenta, black and cyan all appear to have a more normal curve with the heaviest gain closer to the mid-tones.

The readings from the Average 35% setting:

35% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.150	17	0.708	17.866	5.556	12.310
0.210	31	0.617	29.264	11.111	18.153
0.270	45	0.537	39.191	16.667	22.524
0.322	59	0.476	46.752	22.222	24.530
0.380	73	0.417	54.183	27.778	26.406
0.444	87	0.360	61.310	33.333	27.977
0.512	101	0.308	67.816	38.889	28.927
0.546	115	0.284	70.706	44.444	26.261
0.610	129	0.245	75.569	50.000	25.569
0.672	143	0.213	79.643	55.556	24.088
0.728	157	0.187	82.856	61.111	21.744
0.776	171	0.167	85.298	66.667	18.631
0.838	185	0.145	88.078	72.222	15.856
0.926	199	0.119	91.401	77.778	13.623
0.980	213	0.105	93.131	83.333	9.798
1.092	227	0.081	96.101	88.889	7.212
1.196	241	0.064	98.251	94.444	3.806
1.304	255	0.050	100.000	100.000	0.000

35% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.054	3	0.883	0.000	0.000	0.000
0.138	17	0.728	18.453	5.556	12.898
0.200	31	0.631	29.958	11.111	18.847
0.260	45	0.550	39.632	16.667	22.966
0.312	59	0.488	47.001	22.222	24.779
0.370	73	0.427	54.243	27.778	26.465
0.412	87	0.387	58.915	33.333	25.582
0.470	101	0.339	64.668	38.889	25.779
0.526	115	0.298	69.539	44.444	25.094
0.576	129	0.265	73.388	50.000	23.388
0.644	143	0.227	77.959	55.556	22.404
0.708	157	0.196	81.655	61.111	20.544
0.800	171	0.158	86.098	66.667	19.432
0.894	185	0.128	89.764	72.222	17.541
0.988	199	0.103	92.715	77.778	14.938
1.082	213	0.083	95.093	83.333	11.759
1.166	227	0.068	96.823	88.889	7.934
1.264	241	0.054	98.461	94.444	4.016
1.382	255	0.041	100.000	100.000	0.000

35% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.152	17	0.705	20.402	5.556	14.846
0.196	31	0.637	28.733	11.111	17.622
0.264	45	0.545	40.057	16.667	23.390
0.314	59	0.485	47.323	22.222	25.101
0.370	73	0.427	54.526	27.778	26.749
0.416	87	0.384	59.787	33.333	26.454
0.476	101	0.334	65.862	38.889	26.973
0.504	115	0.313	68.422	44.444	23.978
0.570	129	0.269	73.843	50.000	23.843
0.620	143	0.240	77.434	55.556	21.879
0.684	157	0.207	81.467	61.111	20.356
0.762	171	0.173	85.643	66.667	18.977
0.824	185	0.150	88.467	72.222	16.245
0.890	199	0.129	91.061	77.778	13.284
0.948	213	0.113	93.037	83.333	9.704
1.044	227	0.090	95.780	88.889	6.892
1.132	241	0.074	97.814	94.444	3.370
1.252	255	0.056	100.000	100.000	0.000

35% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.054	3	0.883	0.000	0.000	0.000
0.144	17	0.718	21.931	5.556	16.375
0.200	31	0.631	33.453	11.111	22.342
0.242	45	0.573	41.170	16.667	24.504
0.280	59	0.525	47.538	22.222	25.315
0.330	73	0.468	55.110	27.778	27.333
0.374	87	0.423	61.090	33.333	27.757
0.410	101	0.389	65.551	38.889	26.662
0.454	115	0.352	70.525	44.444	26.081
0.496	129	0.319	74.825	50.000	24.825
0.548	143	0.283	79.604	55.556	24.048
0.586	157	0.259	82.751	61.111	21.640
0.654	171	0.222	87.740	66.667	21.073
0.704	185	0.198	90.941	72.222	18.718
0.740	199	0.182	93.027	77.778	15.250
0.794	213	0.161	95.850	83.333	12.517
0.824	227	0.150	97.273	88.889	8.385
0.854	241	0.140	98.602	94.444	4.157
0.888	255	0.129	100.000	100.000	0.000

Table Set 9

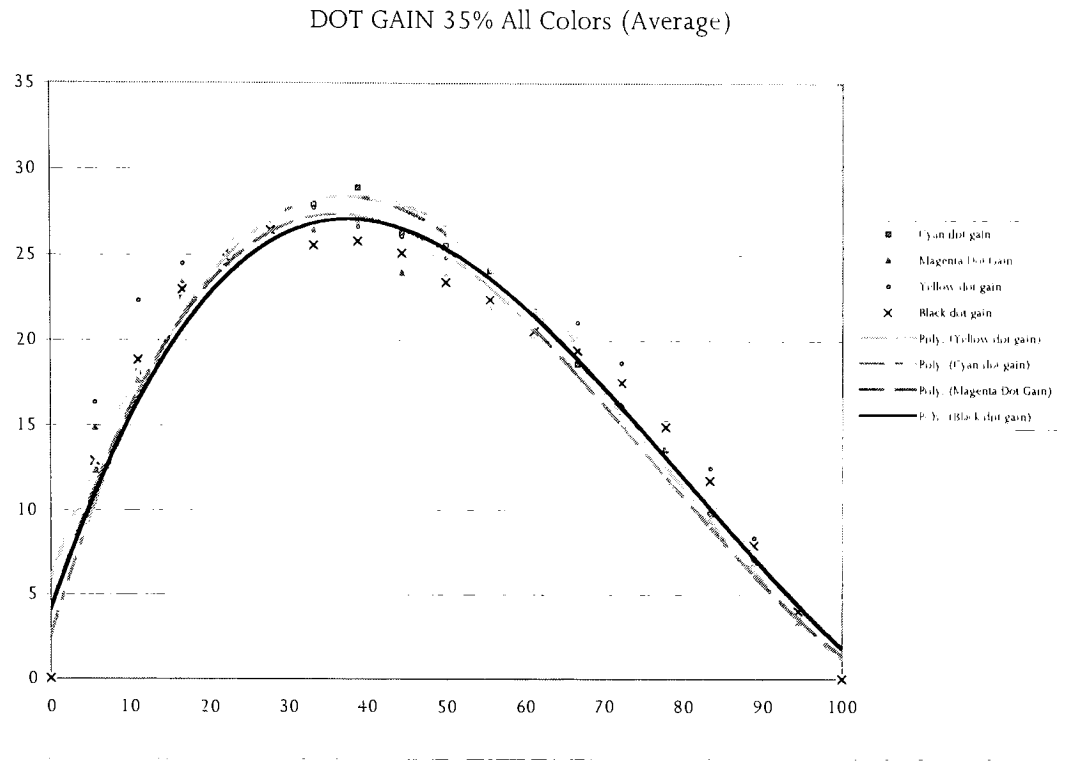


Figure 20

As seen in the Table Set 9, positive dot gain is occurring. This dot gain curve, can be seen in Figure 21. The amount of gain is slightly less than anticipated, although close. While all the values are very similar for the four colors, magenta and black have the least amount of dot gain. Yellow and cyan are the closest to the anticipated with their peaks around 30%.

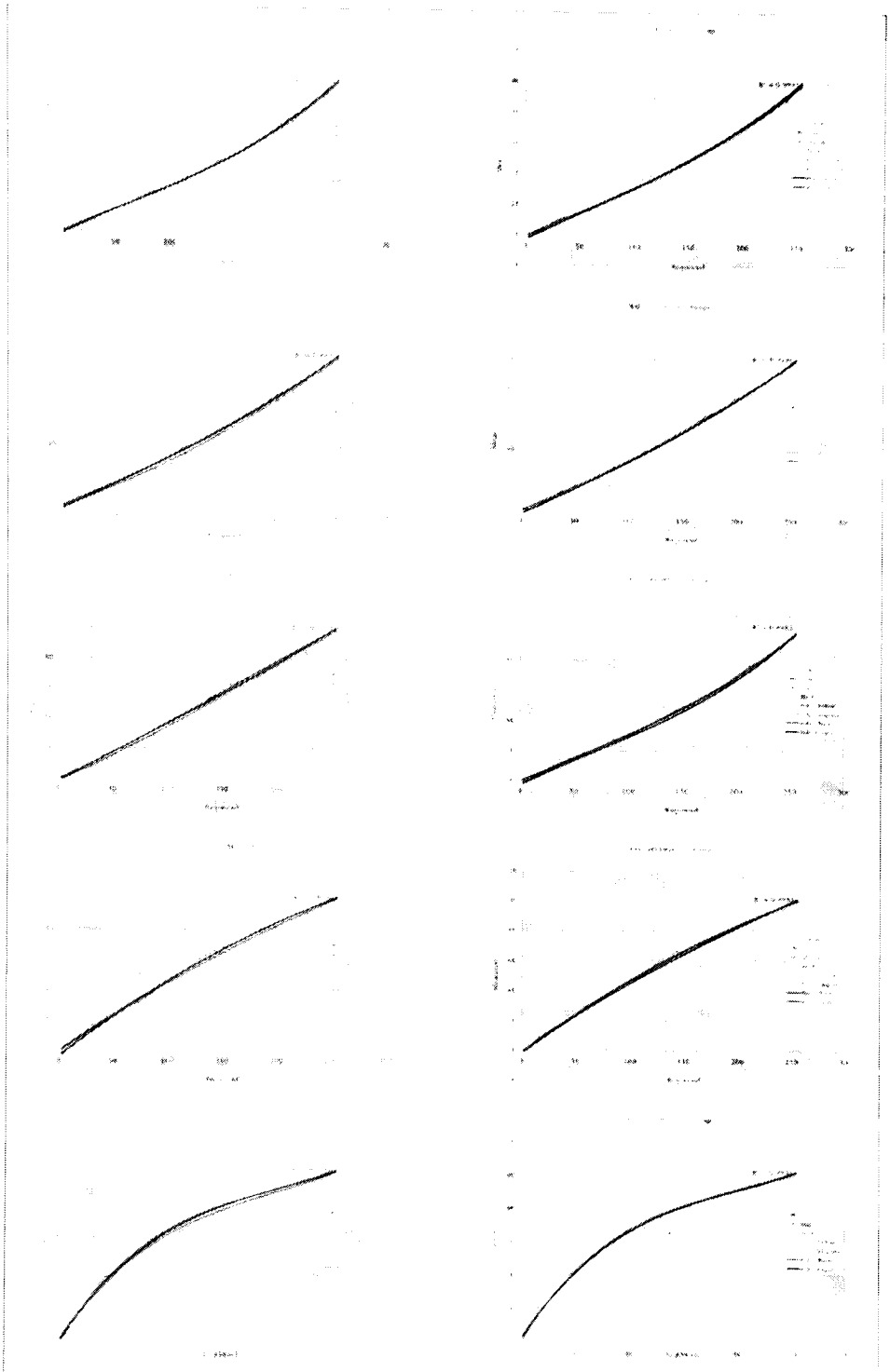
Image Evaluation Test Sheet

The curves that were chosen for the image evaluation (the second press run) were -5%, 0%, 5%, 15%, and 35%. The objective was to choose five curves, two negatives, one neutral, and two positive dot gains. -5% and 35% were chosen because they lay at either extremes of the dot gain spectrum. According to the data collected in the first run, 0% still had negative dot gain so it was chosen as the second negative dot gain setting. Because 5% appeared to have the closest values to neutral, it was chosen. Because they both produced

mid-range curves, the15% or 20% setting could have worked equally as well for a mid range positive gain setting. The setting of 15% was determined to be the more attractive option because it is the setting used most often in the current set up at CIMS, where this study's printing was conducted.

The second run produced both the test images to be used in the psychometric evaluation and test sheets that contain the 8 Bit Step Chart. By pairing the test images with an 8 Bit Step Chart it is possible to identify each image set's curve at the time it was printed. This allowed a comparison of dot gain curves and transfer curves between the first and second press run to identify any blatant discrepancies.

The comparison of the transfer curves from the first run (curves based off the averages of -5%, 0%, 5%, 15%, and 35%) and the images used in the evaluation can be seen in Figure 21. To see a comparison of the dot gain curves for these same settings, please refer to Appendix D.



Transfer curve comparison between runs

Figure 21

Psychometric evaluation.

The results of the psychometric evaluation were a general favoring of slight dot gain, at the 15% dot gain setting, with no reference image. The test was under standard lighting. The images were cut and matted on a medium gray mat board. The test was conducted on a table covered with a white mat board. All ambient light from nearby rooms was reduced to a minimum. The images were randomly placed for each participant in the evaluation. The random combinations were generated in Excel. There were a total of fifteen participants evaluated in the psychometric study. The study included staff, old and new graduate students, and undergraduate students. Some of the new graduate students had backgrounds that were limited in their exposure to the graphic arts. No one under the age of eighteen was tested.

The test was conducted with out reference, meaning the test participant was asked to rank the pictures in the study by "quality." This caused the user to rank against one image against another by however they defined quality (often by what was most pleasing.) Each participant was given the same set of instructions, which can be found in Appendix E.

Readings for the ranked psychometric evaluation, overall and by image type:

Key For Table Set 10	
A	N7A, Muscians
B	N6A, Orchid
C	N4A, Wine and Tableware
D	N2A, Cafeteria
E	N8A, Candle

Preferred Curve for All Image Types

Judge	-5% Curve	0% Curve	5% Curve	15% Curve	35% Curve
1	3	5	2	1	4
2	4	2	3	5	1
3	5	4	3	2	1
4	5	4	3	2	1
5	5	4	3	1	2
6	5	4	3	2	4
7	5	4	3	2	1
8	5	4	3	2	1
9	5	4	2	1	3
10	4	2	3	1	5
11	4	3	2	1	5
12	3	4	1	2	5
13	4	3	2	1	5
14	5	4	3	2	1
15	4	5	3	2	1
Average Rank Order for Dot gain	4.400	3.733	2.600	1.800	2.667
Standard Deviation of Rank Orders	0.737	0.884	0.632	1.014	1.799

Preferred Curve for IMAGE A

Judge	-5% Curve	0% Curve	5% Curve	15% Curve	35% Curve
1	4	3	2	1	5
2	4	3	2	1	5
3	5	4	3	1	2
4	3	4	2	1	5
5	4	5	3	2	1
6	5	3	4	1	2
7	4	5	3	1	2
8	5	4	3	2	1
9	5	4	2	1	3
10	4	3	2	1	5
11	4	3	2	1	5
12	4	3	2	1	5
13	3	1	2	4	5
14	5	4	3	1	2
15	5	4	3	2	1
Average Rank Order for Dot gain	4.267	3.533	2.533	1.400	3.267
Standard Deviation of Rank Orders	0.704	0.990	0.640	0.828	1.751

Preferred Curve for IMAGE B

Judge	-5% Curve	0% Curve	5% Curve	15% Curve	35% Curve
1	5	4	2	1	3
2	1	3	2	4	5
3	5	4	3	1	2
4	3	5	4	1	5
5	3	5	4	1	2
6	4	5	2	3	1
7	4	5	3	1	2
8	5	4	3	2	1
9	5	4	2	1	3
10	4	5	3	1	2
11	5	4	3	2	1
12	4	3	2	1	5
13	2	1	3	4	5
14	4	5	3	2	1
15	5	4	3	2	1
Average Rank Order for Dot gain	3.933	4.067	2.800	1.800	2.600
Standard Deviation of Rank Orders	1.223	1.100	0.676	1.082	1.639

Preferred Curve for IMAGE C

Judge	-5% Curve	0% Curve	5% Curve	15% Curve	35% Curve
1	5	4	3	1	2
2	4	3	1	2	5
3	5	4	3	1	2
4	5	2	3	1	4
5	5	4	3	2	1
6	5	3	4	1	2
7	5	4	3	2	1
8	5	4	3	2	1
9	5	4	2	1	3
10	3	5	2	4	1
11	4	3	2	1	5
12	4	3	1	2	5
13	2	1	3	4	5
14	5	3	4	2	1
15	5	4	3	2	1
Average Rank Order for Dot gain	4.467	3.400	2.667	1.867	2.600
Standard Deviation of Rank Orders	0.915	0.986	0.900	0.990	1.724

Preferred Curve for IMAGE D

Judge	-5% Curve	0% Curve	5% Curve	15% Curve	35% Curve
1	4	3	1	2	5
2	2	1	3	4	5
3	2	3	1	4	5
4	3	5	2	1	4
5	4	5	3	1	2
6	5	3	2	1	4
7	4	5	3	1	2
8	5	4	3	2	1
9	4	3	1	2	5
10	4	5	3	1	2
11	4	3	2	1	5
12	2	1	3	4	5
13	1	4	3	2	5
14	4	5	3	2	1
15	5	4	3	2	1
Average Rank Order for Dot gain	3.533	3.600	2.400	2.000	3.467
Standard Deviation of Rank Orders	1.246	1.352	0.828	1.134	1.727

Preferred Curve for IMAGE E

Judge	-5% Curve	0% Curve	5% Curve	15% Curve	35% Curve
1	3	2	1	4	5
2	4	2	3	1	5
3	5	4	3	1	2
4	5	2	3	1	4
5	5	4	3	1	2
6	4	5	1	2	3
7	1	5	4	2	3
8	4	5	3	2	1
9	5	4	2	1	3
10	3	2	4	1	5
11	4	2	1	3	5
12	4	1	2	3	5
13	1	2	3	4	5
14	5	4	3	2	1
15	5	4	3	2	1
Average Rank Order for Dot gain	3.867	3.200	2.600	2.000	3.333
Standard Deviation of Rank Orders	1.356	1.373	0.986	1.069	1.633

Table Set 10

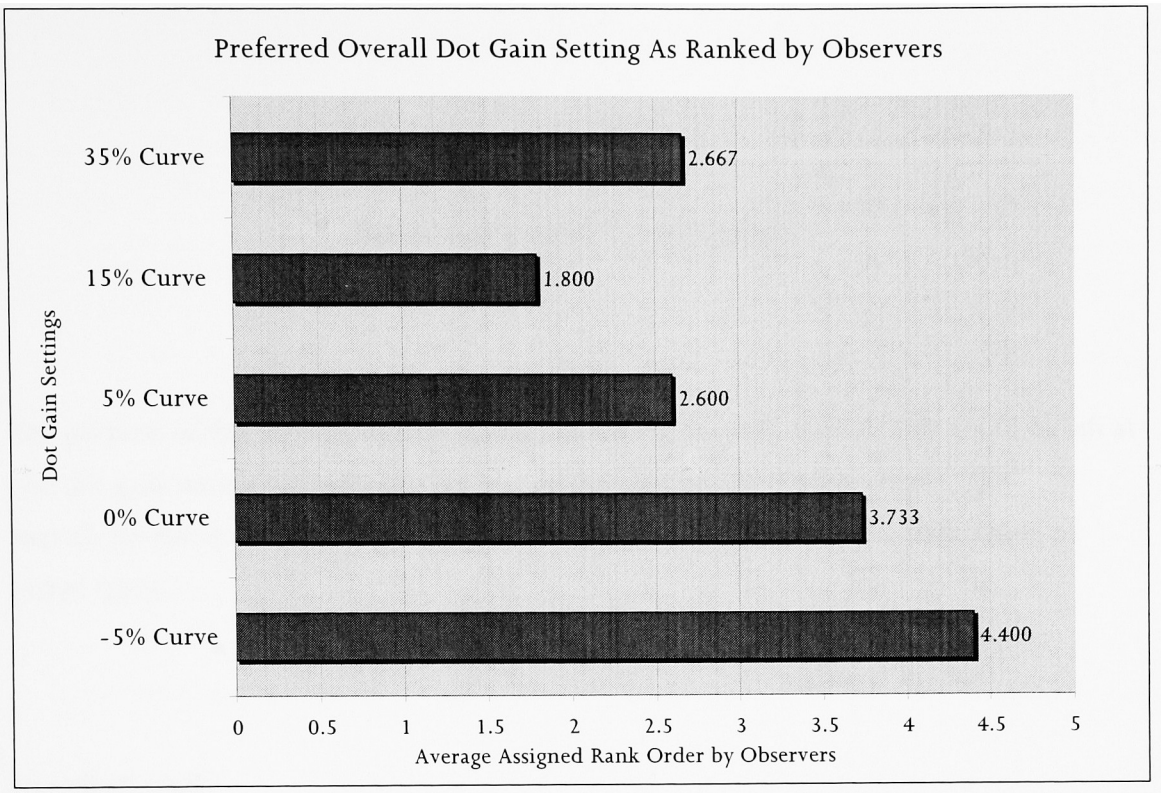


Figure22

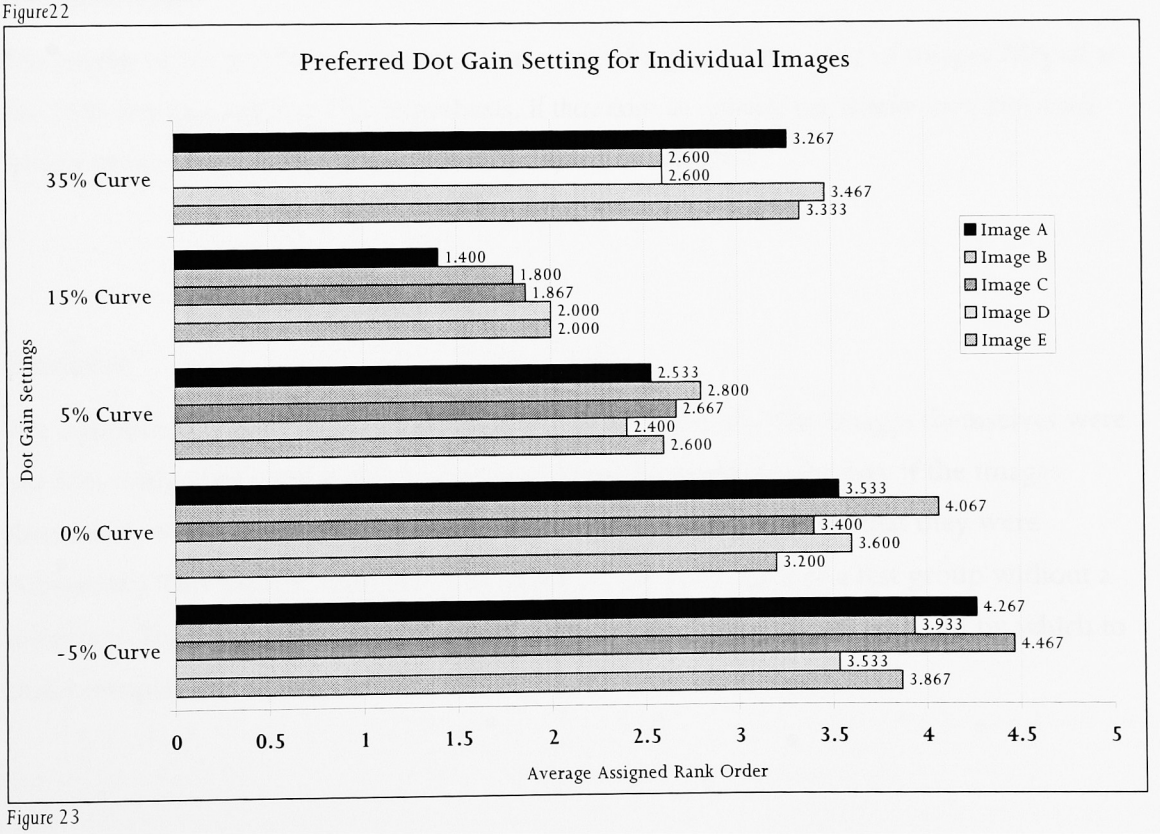


Figure 23

Chapter 7
Summary and Conclusion

The purpose of this investigation was to determine if the Xeikon DCP/50D could be left at one dot gain setting throughout various runs and achieve acceptable results. The hypothesis stated that an optimum tone transfer curve might exist for a wide range of image types.

Hypothesis result

The results of the psychometric evaluation were of a general favoring of images RIPped at the 15% dot gain setting. The hypothesis, *if there exists an optimum tone transfer curve, then it will optimize image quality over the entire range of image keyness,* is accepted.

Conclusion

The hypothesis was accepted for the conditions of this study. The images themselves were test files with a full tonal range of data available. The results might vary if the images themselves were converted to account for dot gain (and the amount that they were converted.) This study's result was also based on the preference of a test group without a reference. The results may have also been varied if an "original" was on hand by which to make comparisons against.

Benefits

While it is rare that a customer would base a decision without an original for comparison, the end user often has no original on hand. The end user's decision is based on whatever set of internal references they hold. Admittedly, there are situations in which individual preference is not ideal, and exact color matching holds a higher precedence (such as clothing catalogs.) However, this information might be useful in a publication type situation, such as a newsletter, where appealing to the public is of top importance and the idea of an original doesn't exist.

Having an optimum dot gain setting that appeals to the public allows the operator to hold a specific dot gain setting. This means less operator work and speedier workflow through the press. So while the operator will always be a key in determining the appropriateness of using the optimum curve, the option exists and can be communicated to the customer.

Areas for Further Study

The Xeikon system is not the only system that can handle variable data and short run printing. An image quality study with the options available on the Indigo E-Print might prove interesting. The devices themselves might be able to be compared in a preference study. There are other substrates besides paper, such as plastic films, that could be tested and compared on and against devices. However, there are still many areas of the Xeikon system that are left for investigation. Recommendation for other studies with the Xeikon system might include:

- Often during the psychometric evaluation, the user would ask for an original to compare the test image against. This might lead to the conclusion that different requirements are used with an original, than without. The investigation just performed would make an interesting pairing with a similar study done, but with a reference image in the psychometric evaluation. The reference image could be on-screen and/or a print "original."

- Out of gamut colors and how the Xeikon system handles them (successfully or not.)
- Using different color spaces to define/translate the image and its color gamut.
- Testing the image quality at different data bit depths (for example 1, 2, 3, and 4) on the Xeikon DCP 32/D and the Xeikon DCP 50/D
- A comparison of image quality with the GEM off, and
- The reproduction of solids on coated and uncoated paper.

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Appendices

Appendix A
Press Sheet Samples

Appendix B

Table Sets, First Run

[All Dot Gain Settings]

Appendix Submenu: -5% Tables, Count Numbers 59,60, 3, 25, 30

-5% DOT GAIN SETTING, MAGENTA [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.437	5.556	-3.118
0.090	31	0.813	7.147	11.111	-3.964
0.110	45	0.776	11.644	16.667	-5.022
0.130	59	0.741	15.939	22.222	-6.283
0.160	73	0.692	22.022	27.778	-5.756
0.180	87	0.661	25.850	33.333	-7.483
0.200	101	0.631	29.506	38.889	-9.383
0.230	115	0.589	34.683	44.444	-9.761
0.270	129	0.537	41.053	50.000	-8.947
0.300	143	0.501	45.459	55.556	-10.096
0.340	157	0.457	50.881	61.111	-10.230
0.390	171	0.407	56.992	66.667	-9.675
0.430	185	0.372	61.399	72.222	-10.824
0.500	199	0.316	68.198	77.778	-9.580
0.580	213	0.263	74.738	83.333	-8.595
0.690	227	0.204	81.974	88.889	-6.915
0.830	241	0.148	88.891	94.444	-5.554
1.240	255	0.058	100.000	100.000	0.000

-5% DOT GAIN SETTING, YELLOW [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	5.261	5.556	-0.294
0.110	31	0.776	12.712	11.111	1.601
0.130	45	0.741	17.401	16.667	0.735
0.140	59	0.724	19.666	22.222	-2.556
0.160	73	0.692	24.042	27.778	-3.735
0.180	87	0.661	28.221	33.333	-5.112
0.210	101	0.617	34.140	38.889	-4.749
0.250	115	0.562	41.422	44.444	-3.023
0.270	129	0.537	44.819	50.000	-5.181
0.290	143	0.513	48.063	55.556	-7.493
0.320	157	0.479	52.657	61.111	-8.454
0.360	171	0.437	58.310	66.667	-8.357
0.400	185	0.398	63.465	72.222	-8.758
0.450	199	0.355	69.275	77.778	-8.502
0.520	213	0.302	76.364	83.333	-6.969
0.610	227	0.245	83.951	88.889	-4.938
0.710	241	0.195	90.727	94.444	-3.718
0.900	255	0.126	100.000	100.000	0.000

-5% DOT GAIN SETTING, CYAN [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	4.782	5.556	-0.773
0.110	31	0.776	11.555	11.111	0.444
0.120	45	0.759	13.711	16.667	-2.956
0.140	59	0.724	17.876	22.222	-4.346
0.170	73	0.676	23.775	27.778	-4.002
0.190	87	0.646	27.488	33.333	-5.846
0.200	101	0.631	29.281	38.889	-9.608
0.250	115	0.562	37.652	44.444	-6.793
0.280	129	0.525	42.231	50.000	-7.769
0.310	143	0.490	46.504	55.556	-9.051
0.350	157	0.447	51.762	61.111	-9.349
0.400	171	0.398	57.688	66.667	-8.979
0.450	185	0.355	62.970	72.222	-9.252
0.530	199	0.295	70.252	77.778	-7.525
0.620	213	0.240	76.991	83.333	-6.342
0.720	227	0.191	83.010	88.889	-5.878
0.880	241	0.132	90.174	94.444	-4.270
1.290	255	0.051	100.000	100.000	0.000

-5% DOT GAIN SETTING, BLACK [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.070	31	0.851	2.356	11.111	-8.755
0.110	45	0.776	11.256	16.667	-5.410
0.140	59	0.724	17.414	22.222	-4.809
0.160	73	0.692	21.289	27.778	-6.489
0.180	87	0.661	24.989	33.333	-8.344
0.210	101	0.617	30.230	38.889	-8.659
0.250	115	0.562	36.677	44.444	-7.767
0.280	129	0.525	41.138	50.000	-8.862
0.300	143	0.501	43.945	55.556	-11.610
0.350	157	0.447	50.422	61.111	-10.689
0.390	171	0.407	55.093	66.667	-11.573
0.460	185	0.347	62.300	72.222	-9.922
0.540	199	0.288	69.233	77.778	-8.545
0.650	213	0.224	76.902	83.333	-6.432
0.760	227	0.174	82.855	88.889	-6.034
0.950	241	0.112	90.173	94.444	-4.271
1.530	255	0.030	100.000	100.000	0.000

-5% DOT GAIN SETTING, MAGENTA [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.080	31	0.832	4.827	11.111	-6.284
0.110	45	0.776	11.663	16.667	-5.003
0.130	59	0.741	15.966	22.222	-6.257
0.150	73	0.708	20.074	27.778	-7.704
0.170	87	0.676	23.998	33.333	-9.336
0.200	101	0.631	29.555	38.889	-9.334
0.220	115	0.603	33.051	44.444	-11.393
0.260	129	0.550	39.580	50.000	-10.420
0.290	143	0.513	44.097	55.556	-11.459
0.340	157	0.457	50.965	61.111	-10.146
0.380	171	0.417	55.917	66.667	-10.749
0.420	185	0.380	60.434	72.222	-11.788
0.500	199	0.316	68.311	77.778	-9.467
0.570	213	0.269	74.107	83.333	-9.226
0.670	227	0.214	80.924	88.889	-7.965
0.810	241	0.155	88.179	94.444	-6.266
1.230	255	0.059	100.000	100.000	0.000

-5% DOT GAIN SETTING, YELLOW [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.772	5.556	2.217
0.110	31	0.776	12.664	11.111	1.553
0.130	45	0.741	17.335	16.667	0.668
0.150	59	0.708	21.796	22.222	-0.427
0.170	73	0.676	26.056	27.778	-1.722
0.180	87	0.661	28.113	33.333	-5.220
0.210	101	0.617	34.009	38.889	-4.880
0.240	115	0.575	39.512	44.444	-4.933
0.270	129	0.537	44.647	50.000	-5.353
0.290	143	0.513	47.879	55.556	-7.677
0.330	157	0.468	53.912	61.111	-7.199
0.380	171	0.417	60.713	66.667	-5.954
0.420	185	0.380	65.617	72.222	-6.605
0.460	199	0.347	70.090	77.778	-7.688
0.530	213	0.295	76.991	83.333	-6.343
0.620	227	0.240	84.376	88.889	-4.513
0.710	241	0.195	90.379	94.444	-4.065
0.910	255	0.123	100.000	100.000	0.000

-5% DOT GAIN SETTING, CYAN [count 3]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.080	17	0.832	2.419	5.556	-3.137
0.110	31	0.776	9.349	11.111	-1.762
0.120	45	0.759	11.555	16.667	-5.111
0.140	59	0.724	15.818	22.222	-6.405
0.160	73	0.692	19.888	27.778	-7.890
0.190	87	0.646	25.653	33.333	-7.681
0.210	101	0.617	29.281	38.889	-9.608
0.240	115	0.575	34.418	44.444	-10.026
0.270	129	0.537	39.213	50.000	-10.787
0.310	143	0.490	45.112	55.556	-10.443
0.350	157	0.447	50.492	61.111	-10.619
0.390	171	0.407	55.399	66.667	-11.268
0.460	185	0.347	62.970	72.222	-9.252
0.540	199	0.288	70.252	77.778	-7.525
0.630	213	0.234	76.991	83.333	-6.342
0.710	227	0.195	81.915	88.889	-6.974
0.860	241	0.138	89.024	94.444	-5.420
1.300	255	0.050	100.000	100.000	0.000

-5% DOT GAIN SETTING, BLACK [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.080	31	0.832	4.659	11.111	-6.453
0.120	45	0.759	13.356	16.667	-3.310
0.140	59	0.724	17.414	22.222	-4.809
0.160	73	0.692	21.289	27.778	-6.489
0.180	87	0.661	24.989	33.333	-8.344
0.210	101	0.617	30.230	38.889	-8.659
0.240	115	0.575	35.121	44.444	-9.324
0.270	129	0.537	39.685	50.000	-10.315
0.300	143	0.501	43.945	55.556	-11.610
0.350	157	0.447	50.422	61.111	-10.689
0.390	171	0.407	55.093	66.667	-11.573
0.460	185	0.347	62.300	72.222	-9.922
0.520	199	0.302	67.617	77.778	-10.160
0.620	213	0.240	74.999	83.333	-8.334
0.740	227	0.182	81.882	88.889	-7.007
0.930	241	0.117	89.545	94.444	-4.900
1.530	255	0.030	100.000	100.000	0.000

-5% DOT GAIN SETTING, MAGENTA [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.430	5.556	-3.126
0.090	31	0.813	7.124	11.111	-3.987
0.120	45	0.759	13.773	16.667	-2.894
0.130	59	0.741	15.889	22.222	-6.334
0.160	73	0.692	21.952	27.778	-5.826
0.180	87	0.661	25.768	33.333	-7.565
0.200	101	0.631	29.412	38.889	-9.477
0.240	115	0.575	36.216	44.444	-8.229
0.270	129	0.537	40.923	50.000	-9.077
0.310	143	0.490	46.713	55.556	-8.842
0.350	157	0.447	51.994	61.111	-9.117
0.390	171	0.407	56.811	66.667	-9.856
0.440	185	0.363	62.240	72.222	-9.982
0.500	199	0.316	67.982	77.778	-9.796
0.570	213	0.269	73.750	83.333	-9.583
0.680	227	0.209	81.131	88.889	-7.758
0.820	241	0.151	88.186	94.444	-6.258
1.260	255	0.055	100.000	100.000	0.000

-5% DOT GAIN SETTING, YELLOW [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	5.303	5.556	-0.252
0.100	31	0.794	10.368	11.111	-0.743
0.120	45	0.759	15.205	16.667	-1.462
0.140	59	0.724	19.824	22.222	-2.398
0.160	73	0.692	24.235	27.778	-3.542
0.180	87	0.661	28.448	33.333	-4.885
0.200	101	0.631	32.471	38.889	-6.418
0.240	115	0.575	39.982	44.444	-4.462
0.260	129	0.550	43.486	50.000	-6.514
0.280	143	0.525	46.832	55.556	-8.723
0.310	157	0.490	51.572	61.111	-9.540
0.350	171	0.447	57.402	66.667	-9.265
0.390	185	0.407	62.719	72.222	-9.503
0.450	199	0.355	69.831	77.778	-7.946
0.520	213	0.302	76.977	83.333	-6.356
0.610	227	0.245	84.625	88.889	-4.264
0.690	241	0.204	90.212	94.444	-4.233
0.880	255	0.132	100.000	100.000	0.000

-5% DOT GAIN SETTING, CYAN [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	4.769	5.556	-0.787
0.100	31	0.794	9.323	11.111	-1.788
0.120	45	0.759	13.673	16.667	-2.994
0.140	59	0.724	17.826	22.222	-4.396
0.160	73	0.692	21.793	27.778	-5.985
0.190	87	0.646	27.410	33.333	-5.923
0.210	101	0.617	30.946	38.889	-7.943
0.240	115	0.575	35.952	44.444	-8.492
0.270	129	0.537	40.625	50.000	-9.375
0.310	143	0.490	46.374	55.556	-9.182
0.350	157	0.447	51.616	61.111	-9.495
0.390	171	0.407	56.398	66.667	-10.269
0.450	185	0.355	62.793	72.222	-9.429
0.500	199	0.316	67.487	77.778	-10.290
0.620	213	0.240	76.775	83.333	-6.558
0.700	227	0.200	81.685	88.889	-7.204
0.850	241	0.141	88.774	94.444	-5.670
1.310	255	0.049	100.000	100.000	0.000

-5% DOT GAIN SETTING, BLACK [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.070	31	0.851	2.360	11.111	-8.751
0.110	45	0.776	11.275	16.667	-5.392
0.130	59	0.741	15.434	22.222	-6.788
0.160	73	0.692	21.324	27.778	-6.454
0.180	87	0.661	25.030	33.333	-8.303
0.210	101	0.617	30.280	38.889	-8.609
0.230	115	0.589	33.583	44.444	-10.861
0.270	129	0.537	39.751	50.000	-10.249
0.290	143	0.513	42.628	55.556	-12.927
0.340	157	0.457	49.267	61.111	-11.844
0.390	171	0.407	55.185	66.667	-11.482
0.450	185	0.355	61.442	72.222	-10.780
0.520	199	0.302	67.729	77.778	-10.048
0.620	213	0.240	75.123	83.333	-8.210
0.740	227	0.182	82.017	88.889	-6.872
0.930	241	0.117	89.693	94.444	-4.752
1.510	255	0.031	100.000	100.000	0.000

-5% DOT GAIN SETTING, MAGENTA [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.441	5.556	-3.114
0.090	31	0.813	7.159	11.111	-3.953
0.120	45	0.759	13.839	16.667	-2.827
0.130	59	0.741	15.966	22.222	-6.257
0.160	73	0.692	22.059	27.778	-5.719
0.180	87	0.661	25.893	33.333	-7.441
0.200	101	0.631	29.555	38.889	-9.334
0.240	115	0.575	36.391	44.444	-8.053
0.270	129	0.537	41.121	50.000	-8.879
0.300	143	0.501	45.535	55.556	-10.021
0.340	157	0.457	50.965	61.111	-10.146
0.390	171	0.407	57.086	66.667	-9.581
0.440	185	0.363	62.541	72.222	-9.681
0.500	199	0.316	68.311	77.778	-9.467
0.580	213	0.263	74.862	83.333	-8.472
0.680	227	0.209	81.523	88.889	-7.366
0.820	241	0.151	88.613	94.444	-5.831
1.230	255	0.059	100.000	100.000	0.000

-5% DOT GAIN SETTING, YELLOW [count 25]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.060	17	0.871	2.661	5.556	-2.895
0.090	31	0.813	10.286	11.111	-0.825
0.110	45	0.776	15.084	16.667	-1.583
0.130	59	0.741	19.666	22.222	-2.556
0.150	73	0.708	24.042	27.778	-3.735
0.180	87	0.661	30.240	33.333	-3.093
0.200	101	0.631	34.140	38.889	-4.749
0.240	115	0.575	41.422	44.444	-3.023
0.260	129	0.550	44.819	50.000	-5.181
0.280	143	0.525	48.063	55.556	-7.493
0.310	157	0.490	52.657	61.111	-8.454
0.350	171	0.447	58.310	66.667	-8.357
0.390	185	0.407	63.465	72.222	-8.758
0.440	199	0.363	69.275	77.778	-8.502
0.510	213	0.309	76.364	83.333	-6.969
0.600	227	0.251	83.951	88.889	-4.938
0.710	241	0.195	91.323	94.444	-3.122
0.890	255	0.129	100.000	100.000	0.000

-5% DOT GAIN SETTING, CYAN [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	4.756	5.556	-0.799
0.110	31	0.776	11.492	11.111	0.381
0.120	45	0.759	13.636	16.667	-3.031
0.140	59	0.724	17.778	22.222	-4.444
0.160	73	0.692	21.734	27.778	-6.043
0.190	87	0.646	27.337	33.333	-5.996
0.210	101	0.617	30.863	38.889	-8.026
0.240	115	0.575	35.856	44.444	-8.588
0.280	129	0.525	42.000	50.000	-8.000
0.320	143	0.479	47.602	55.556	-7.953
0.360	157	0.437	52.712	61.111	-8.399
0.410	171	0.389	58.472	66.667	-8.195
0.470	185	0.339	64.563	72.222	-7.660
0.550	199	0.282	71.479	77.778	-6.298
0.640	213	0.229	77.880	83.333	-5.454
0.750	227	0.178	84.099	88.889	-4.790
0.880	241	0.132	89.681	94.444	-4.764
1.330	255	0.047	100.000	100.000	0.000

-5% DOT GAIN SETTING, BLACK [count 30]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.070	17	0.851	4.662	5.556	-0.893
0.110	31	0.776	13.367	11.111	2.256
0.130	45	0.741	17.428	16.667	0.761
0.160	59	0.692	23.179	22.222	0.957
0.180	73	0.661	26.798	27.778	-0.980
0.210	87	0.617	31.924	33.333	-1.410
0.240	101	0.575	36.707	38.889	-2.182
0.280	115	0.525	42.592	44.444	-1.852
0.300	129	0.501	45.338	50.000	-4.662
0.360	143	0.437	52.855	55.556	-2.701
0.400	157	0.398	57.319	61.111	-3.792
0.460	171	0.347	63.290	66.667	-3.377
0.550	185	0.282	70.833	72.222	-1.389
0.660	199	0.219	78.163	77.778	0.385
0.770	213	0.170	83.853	83.333	0.520
0.960	227	0.110	90.847	88.889	1.958
1.510	241	0.031	100.000	94.444	5.556
1.510	255	0.031	100.000	100.000	0.000

-5% DOT GAIN SETTING, MAGENTA [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.437	5.556	-3.118
0.090	31	0.813	7.147	11.111	-3.964
0.120	45	0.759	13.816	16.667	-2.850
0.130	59	0.741	15.939	22.222	-6.283
0.150	73	0.708	20.041	27.778	-7.737
0.190	87	0.646	27.699	33.333	-5.634
0.210	101	0.617	31.272	38.889	-7.617
0.240	115	0.575	36.331	44.444	-8.113
0.270	129	0.537	41.053	50.000	-8.947
0.310	143	0.490	46.862	55.556	-8.694
0.340	157	0.457	50.881	61.111	-10.230
0.390	171	0.407	56.992	66.667	-9.675
0.450	185	0.355	63.454	72.222	-8.768
0.510	199	0.309	69.083	77.778	-8.695
0.580	213	0.263	74.738	83.333	-8.595
0.690	227	0.204	81.974	88.889	-6.915
0.830	241	0.148	88.891	94.444	-5.554
1.240	255	0.058	100.000	100.000	0.000

-5% DOT GAIN SETTING, YELLOW [count 30]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.070	17	0.851	5.303	5.556	-0.252
0.090	31	0.813	10.368	11.111	-0.743
0.110	45	0.776	15.205	16.667	-1.462
0.130	59	0.741	19.824	22.222	-2.398
0.160	73	0.692	26.366	27.778	-1.412
0.170	87	0.676	28.448	33.333	-4.885
0.200	101	0.631	34.414	38.889	-4.475
0.230	115	0.589	39.982	44.444	-4.462
0.260	129	0.550	45.179	50.000	-4.821
0.280	143	0.525	48.449	55.556	-7.107
0.310	157	0.490	53.080	61.111	-8.031
0.350	171	0.447	58.778	66.667	-7.889
0.390	185	0.407	63.974	72.222	-8.248
0.440	199	0.363	69.831	77.778	-7.946
0.510	213	0.309	76.977	83.333	-6.356
0.590	227	0.257	83.851	88.889	-5.038
0.680	241	0.209	90.212	94.444	-4.233
0.870	255	0.135	100.000	100.000	0.000

-5% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.062	3	0.867	0.000	0.000	0.000
0.080	17	0.832	4.305	5.556	-1.250
0.106	31	0.783	10.218	11.111	-0.893
0.120	45	0.759	13.258	16.667	-3.409
0.140	59	0.724	17.434	22.222	-4.789
0.162	73	0.689	21.811	27.778	-5.967
0.190	87	0.646	27.070	33.333	-6.263
0.208	101	0.619	30.277	38.889	-8.612
0.246	115	0.568	36.625	44.444	-7.820
0.276	129	0.530	41.258	50.000	-8.742
0.314	143	0.485	46.686	55.556	-8.869
0.354	157	0.443	51.909	61.111	-9.202
0.398	171	0.400	57.125	66.667	-9.541
0.458	185	0.348	63.438	72.222	-8.784
0.530	199	0.295	69.947	77.778	-7.830
0.628	213	0.236	77.240	83.333	-6.094
0.724	227	0.189	82.953	88.889	-5.936
0.870	241	0.135	89.546	94.444	-4.899
1.306	255	0.049	100.000	100.000	0.000

-5% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.058	3	0.875	0.000	0.000	0.000
0.062	17	0.867	0.949	5.556	-4.606
0.082	31	0.828	5.567	11.111	-5.544
0.116	45	0.766	12.944	16.667	-3.722
0.142	59	0.721	18.209	22.222	-4.013
0.164	73	0.685	22.424	27.778	-5.354
0.186	87	0.652	26.431	33.333	-6.903
0.218	101	0.605	31.908	38.889	-6.981
0.250	115	0.562	36.996	44.444	-7.448
0.280	129	0.525	41.438	50.000	-8.562
0.310	143	0.490	45.583	55.556	-9.972
0.360	157	0.437	51.886	61.111	-9.225
0.406	171	0.393	57.077	66.667	-9.589
0.478	185	0.333	64.176	72.222	-8.046
0.556	199	0.278	70.647	77.778	-7.131
0.660	213	0.219	77.652	83.333	-5.681
0.790	227	0.162	84.349	88.889	-4.540
1.054	241	0.088	93.091	94.444	-1.353
1.524	255	0.030	100.000	100.000	0.000

-5% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.068	17	0.855	1.954	5.556	-3.601
0.088	31	0.817	6.686	11.111	-4.426
0.116	45	0.766	12.954	16.667	-3.713
0.130	59	0.741	15.939	22.222	-6.283
0.156	73	0.698	21.235	27.778	-6.543
0.180	87	0.661	25.850	33.333	-7.483
0.202	101	0.628	29.862	38.889	-9.027
0.234	115	0.583	35.347	44.444	-9.098
0.268	129	0.540	40.748	50.000	-9.252
0.302	143	0.499	45.743	55.556	-9.813
0.342	157	0.455	51.139	61.111	-9.972
0.388	171	0.409	56.761	66.667	-9.906
0.436	185	0.366	62.025	72.222	-10.197
0.502	199	0.315	68.377	77.778	-9.401
0.576	213	0.265	74.439	83.333	-8.894
0.682	227	0.208	81.507	88.889	-7.382
0.822	241	0.151	88.552	94.444	-5.892
1.240	255	0.058	100.000	100.000	0.000

-5% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.056	3	0.879	0.000	0.000	0.000
0.076	17	0.839	5.274	5.556	-0.282
0.100	31	0.794	11.290	11.111	0.178
0.120	45	0.759	16.055	16.667	-0.612
0.138	59	0.728	20.160	22.222	-2.062
0.160	73	0.692	24.952	27.778	-2.825
0.178	87	0.664	28.696	33.333	-4.637
0.204	101	0.625	33.838	38.889	-5.051
0.240	115	0.575	40.467	44.444	-3.977
0.264	129	0.545	44.591	50.000	-5.409
0.284	143	0.520	47.858	55.556	-7.698
0.316	157	0.483	52.781	61.111	-8.330
0.358	171	0.439	58.717	66.667	-7.950
0.398	185	0.400	63.860	72.222	-8.362
0.448	199	0.356	69.658	77.778	-8.120
0.518	213	0.303	76.731	83.333	-6.602
0.606	227	0.248	84.149	88.889	-4.740
0.700	241	0.200	90.576	94.444	-3.869
0.890	255	0.129	100.000	100.000	0.000

Appendix Submenu: 0% *Tables,* Count Numbers 59,60, 3, 25, 30

0% DOT GAIN SETTING, CYAN [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	4.782	5.556	-0.773
0.100	31	0.794	9.349	11.111	-1.762
0.130	45	0.741	15.818	16.667	-0.849
0.150	59	0.708	19.888	22.222	-2.334
0.170	73	0.676	23.775	27.778	-4.002
0.200	87	0.631	29.281	33.333	-4.053
0.230	101	0.589	34.418	38.889	-4.470
0.260	115	0.550	39.213	44.444	-5.231
0.290	129	0.513	43.688	50.000	-6.312
0.340	143	0.457	50.492	55.556	-5.063
0.390	157	0.407	56.557	61.111	-4.554
0.450	171	0.355	62.970	66.667	-3.697
0.500	185	0.316	67.677	72.222	-4.545
0.580	199	0.263	74.168	77.778	-3.610
0.650	213	0.224	78.945	83.333	-4.389
0.770	227	0.170	85.538	88.889	-3.350
0.950	241	0.112	92.568	94.444	-1.876
1.290	255	0.051	100.000	100.000	0.000

0% DOT GAIN SETTING, BLACK [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.080	31	0.832	4.634	11.111	-6.477
0.120	45	0.759	13.287	16.667	-3.380
0.130	59	0.741	15.328	22.222	-6.894
0.160	73	0.692	21.178	27.778	-6.600
0.190	87	0.646	26.637	33.333	-6.696
0.220	101	0.603	31.732	38.889	-7.157
0.260	115	0.550	38.000	44.444	-6.444
0.290	129	0.513	42.337	50.000	-7.663
0.330	143	0.468	47.672	55.556	-7.884
0.380	157	0.417	53.685	61.111	-7.426
0.440	171	0.363	60.045	66.667	-6.622
0.500	185	0.316	65.584	72.222	-6.639
0.590	199	0.257	72.581	77.778	-5.197
0.690	213	0.204	78.831	83.333	-4.502
0.820	227	0.151	85.076	88.889	-3.813
1.100	241	0.079	93.579	94.444	-0.866
1.600	255	0.025	100.000	100.000	0.000

0% DOT GAIN SETTING, MAGENTA [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.437	5.556	-3.118
0.090	31	0.813	7.147	11.111	-3.964
0.110	45	0.776	11.644	16.667	-5.022
0.130	59	0.741	15.939	22.222	-6.283
0.150	73	0.708	20.041	27.778	-7.737
0.180	87	0.661	25.850	33.333	-7.483
0.210	101	0.617	31.272	38.889	-7.617
0.240	115	0.575	36.331	44.444	-8.113
0.280	129	0.525	42.556	50.000	-7.444
0.320	143	0.479	48.233	55.556	-7.323
0.360	157	0.437	53.410	61.111	-7.701
0.430	171	0.372	61.399	66.667	-5.268
0.480	185	0.331	66.366	72.222	-5.856
0.540	199	0.288	71.619	77.778	-6.159
0.630	213	0.234	78.255	83.333	-5.078
0.730	227	0.186	84.182	88.889	-4.707
0.890	241	0.129	91.237	94.444	-3.208
1.240	255	0.058	100.000	100.000	0.000

0% DOT GAIN SETTING, YELLOW [count 59 "A"]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.060	17	0.871	2.631	5.556	-2.924
0.090	31	0.813	10.171	11.111	-0.940
0.110	45	0.776	14.916	16.667	-1.751
0.130	59	0.741	19.447	22.222	-2.775
0.160	73	0.692	25.864	27.778	-1.913
0.190	87	0.646	31.853	33.333	-1.480
0.210	101	0.617	35.622	38.889	-3.267
0.240	115	0.575	40.960	44.444	-3.485
0.270	129	0.537	45.941	50.000	-4.059
0.300	143	0.501	50.590	55.556	-4.965
0.330	157	0.468	54.929	61.111	-6.182
0.390	171	0.407	62.757	66.667	-3.910
0.430	185	0.372	67.406	72.222	-4.816
0.490	199	0.324	73.624	77.778	-4.154
0.550	213	0.282	79.039	83.333	-4.294
0.650	227	0.224	86.557	88.889	-2.331
0.750	241	0.178	92.529	94.444	-1.915
0.920	255	0.120	100.000	100.000	0.000

0% DOT GAIN SETTING, CYAN [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	4.789	5.556	-0.766
0.100	31	0.794	9.363	11.111	-1.748
0.130	45	0.741	15.841	16.667	-0.826
0.140	59	0.724	17.902	22.222	-4.320
0.170	73	0.676	23.810	27.778	-3.968
0.200	87	0.631	29.323	33.333	-4.010
0.220	101	0.603	32.793	38.889	-6.096
0.270	115	0.537	40.799	44.444	-3.646
0.280	129	0.525	42.292	50.000	-7.708
0.340	143	0.457	50.566	55.556	-4.989
0.380	157	0.417	55.480	61.111	-5.631
0.450	171	0.355	63.062	66.667	-3.605
0.490	185	0.324	66.876	72.222	-5.346
0.580	199	0.263	74.276	77.778	-3.502
0.650	213	0.224	79.060	83.333	-4.273
0.750	227	0.178	84.685	88.889	-4.203
0.940	241	0.115	92.384	94.444	-2.060
1.280	255	0.052	100.000	100.000	0.000

0% DOT GAIN SETTING, BLACK [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.080	31	0.832	4.651	11.111	-6.460
0.130	45	0.741	15.384	16.667	-1.283
0.140	59	0.724	17.386	22.222	-4.836
0.170	73	0.676	23.124	27.778	-4.654
0.200	87	0.631	28.478	33.333	-4.855
0.220	101	0.603	31.847	38.889	-7.041
0.250	115	0.562	36.620	44.444	-7.825
0.280	129	0.525	41.073	50.000	-8.927
0.330	143	0.468	47.845	55.556	-7.710
0.380	157	0.417	53.881	61.111	-7.231
0.430	171	0.372	59.260	66.667	-7.407
0.490	185	0.324	64.948	72.222	-7.274
0.580	199	0.263	72.135	77.778	-5.643
0.670	213	0.214	77.976	83.333	-5.357
0.790	227	0.162	84.101	88.889	-4.788
1.070	241	0.085	93.245	94.444	-1.199
1.550	255	0.028	100.000	100.000	0.000

0% DOT GAIN SETTING, MAGENTA [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.090	31	0.813	7.171	11.111	-3.940
0.110	45	0.776	11.683	16.667	-4.983
0.130	59	0.741	15.993	22.222	-6.230
0.150	73	0.708	20.108	27.778	-7.670
0.180	87	0.661	25.937	33.333	-7.397
0.210	101	0.617	31.376	38.889	-7.513
0.240	115	0.575	36.453	44.444	-7.992
0.280	129	0.525	42.698	50.000	-7.302
0.320	143	0.479	48.394	55.556	-7.162
0.380	157	0.417	56.012	61.111	-5.099
0.420	171	0.380	60.537	66.667	-6.130
0.470	185	0.339	65.636	72.222	-6.586
0.530	199	0.295	71.030	77.778	-6.748
0.610	213	0.245	77.154	83.333	-6.179
0.710	227	0.195	83.381	88.889	-5.508
0.870	241	0.135	90.793	94.444	-3.651
1.220	255	0.060	100.000	100.000	0.000

0% DOT GAIN SETTING, YELLOW [count 3]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.070	17	0.851	5.303	5.556	-0.252
0.090	31	0.813	10.368	11.111	-0.743
0.110	45	0.776	15.205	16.667	-1.462
0.130	59	0.741	19.824	22.222	-2.398
0.150	73	0.708	24.235	27.778	-3.542
0.170	87	0.676	28.448	33.333	-4.885
0.210	101	0.617	36.313	38.889	-2.576
0.230	115	0.589	39.982	44.444	-4.462
0.260	129	0.550	45.179	50.000	-4.821
0.290	143	0.513	50.028	55.556	-5.527
0.330	157	0.468	55.994	61.111	-5.117
0.370	171	0.427	61.436	66.667	-5.231
0.410	185	0.389	66.398	72.222	-5.824
0.470	199	0.339	73.035	77.778	-4.742
0.540	213	0.288	79.704	83.333	-3.629
0.640	227	0.229	87.547	88.889	-1.342
0.710	241	0.195	92.056	94.444	-2.389
0.870	255	0.135	100.000	100.000	0.000

0% DOT GAIN SETTING, CYAN [count 25]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.080	17	0.832	2.415	5.556	-3.140
0.100	31	0.794	7.082	11.111	-4.029
0.130	45	0.741	13.692	16.667	-2.975
0.140	59	0.724	15.795	22.222	-6.427
0.160	73	0.692	19.860	27.778	-7.918
0.200	87	0.631	27.448	33.333	-5.885
0.220	101	0.603	30.989	38.889	-7.900
0.250	115	0.562	36.002	44.444	-8.442
0.280	129	0.525	40.681	50.000	-9.319
0.330	143	0.468	47.796	55.556	-7.759
0.390	157	0.407	55.320	61.111	-5.791
0.450	171	0.355	61.874	66.667	-4.793
0.500	185	0.316	66.684	72.222	-5.538
0.580	199	0.263	73.316	77.778	-4.462
0.660	213	0.219	78.832	83.333	-4.501
0.760	227	0.174	84.442	88.889	-4.447
0.960	241	0.110	92.437	94.444	-2.008
1.310	255	0.049	100.000	100.000	0.000

0% DOT GAIN SETTING, BLACK [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.080	31	0.832	4.651	11.111	-6.460
0.130	45	0.741	15.384	16.667	-1.283
0.130	59	0.741	15.384	22.222	-6.838
0.160	73	0.692	21.255	27.778	-6.523
0.190	87	0.646	26.734	33.333	-6.599
0.210	101	0.617	30.182	38.889	-8.707
0.250	115	0.562	36.620	44.444	-7.825
0.270	129	0.537	39.623	50.000	-10.377
0.330	143	0.468	47.845	55.556	-7.710
0.370	157	0.427	52.728	61.111	-8.383
0.410	171	0.389	57.182	66.667	-9.485
0.480	185	0.331	64.054	72.222	-8.168
0.570	199	0.269	71.408	77.778	-6.370
0.660	213	0.219	77.385	83.333	-5.948
0.800	227	0.158	84.539	88.889	-4.350
1.050	241	0.089	92.769	94.444	-1.675
1.550	255	0.028	100.000	100.000	0.000

0% DOT GAIN SETTING, MAGENTA [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.433	5.556	-3.122
0.090	31	0.813	7.135	11.111	-3.976
0.110	45	0.776	11.626	16.667	-5.041
0.140	59	0.724	17.985	22.222	-4.237
0.160	73	0.692	21.987	27.778	-5.791
0.180	87	0.661	25.809	33.333	-7.525
0.210	101	0.617	31.221	38.889	-7.668
0.250	115	0.562	37.880	44.444	-6.564
0.280	129	0.525	42.487	50.000	-7.513
0.330	143	0.468	49.492	55.556	-6.063
0.370	157	0.427	54.544	61.111	-6.567
0.420	171	0.380	60.238	66.667	-6.429
0.470	185	0.339	65.312	72.222	-6.910
0.530	199	0.295	70.679	77.778	-7.099
0.620	213	0.240	77.459	83.333	-5.874
0.710	227	0.195	82.970	88.889	-5.919
0.880	241	0.132	90.722	94.444	-3.723
1.250	255	0.056	100.000	100.000	0.000

0% DOT GAIN SETTING, YELLOW [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.671	5.556	-2.884
0.100	31	0.794	10.326	11.111	-0.785
0.120	45	0.759	15.144	16.667	-1.523
0.140	59	0.724	19.744	22.222	-2.478
0.170	73	0.676	26.259	27.778	-1.518
0.190	87	0.646	30.359	33.333	-2.974
0.210	101	0.617	34.275	38.889	-4.614
0.240	115	0.575	39.821	44.444	-4.624
0.270	129	0.537	44.996	50.000	-5.004
0.300	143	0.501	49.826	55.556	-5.730
0.330	157	0.468	54.333	61.111	-6.778
0.370	171	0.427	59.879	66.667	-6.788
0.410	185	0.389	64.936	72.222	-7.286
0.470	199	0.339	71.701	77.778	-6.077
0.550	213	0.282	79.382	83.333	-3.951
0.640	227	0.229	86.490	88.889	-2.399
0.730	241	0.186	92.268	94.444	-2.177
0.890	255	0.129	100.000	100.000	0.000

15% DOT GAIN SETTING, MAGENTA [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.437	5.556	-3.118
0.110	31	0.776	11.644	11.111	0.533
0.130	45	0.741	15.939	16.667	-0.727
0.160	59	0.692	22.022	22.222	-0.200
0.190	73	0.646	27.699	27.778	-0.079
0.230	87	0.589	34.683	33.333	1.350
0.270	101	0.537	41.053	38.889	2.164
0.310	115	0.490	46.862	44.444	2.418
0.350	129	0.447	52.160	50.000	2.160
0.400	143	0.398	58.132	55.556	2.576
0.470	157	0.339	65.418	61.111	4.306
0.510	171	0.309	69.083	66.667	2.416
0.590	185	0.257	75.474	72.222	3.252
0.650	199	0.224	79.552	77.778	1.774
0.720	213	0.191	83.649	83.333	0.316
0.840	227	0.145	89.304	88.889	0.416
0.980	241	0.105	94.201	94.444	-0.243
1.240	255	0.058	100.000	100.000	0.000

10% DOT GAIN SETTING, YELLOW [count 60]

density	**step**	**reflectance**	**dot area**	**relative drive**	**gain**
0.050	3	0.891	0.000	0.000	0.000
0.070	17	0.851	5.261	5.556	-0.294
0.110	31	0.776	15.084	11.111	3.973
0.140	45	0.724	21.879	16.667	5.213
0.160	59	0.692	26.156	22.222	3.934
0.200	73	0.631	34.140	27.778	6.362
0.230	87	0.589	39.664	33.333	6.330
0.260	101	0.550	44.819	38.889	5.930
0.280	115	0.525	48.063	44.444	3.618
0.330	129	0.468	55.548	50.000	5.548
0.370	143	0.427	60.946	55.556	5.391
0.410	157	0.389	65.869	61.111	4.758
0.460	171	0.347	71.419	66.667	4.752
0.510	185	0.309	76.364	72.222	4.142
0.570	199	0.269	81.594	77.778	3.817
0.650	213	0.224	87.534	83.333	4.200
0.720	227	0.191	91.905	88.889	3.016
0.790	241	0.162	95.625	94.444	1.181
0.890	255	0.129	100.000	100.000	0.000

10% DOT GAIN SETTING, CYAN [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.100	17	0.794	9.311	5.556	3.755
0.130	31	0.741	15.752	11.111	4.641
0.140	45	0.724	17.802	16.667	1.135
0.180	59	0.661	25.546	22.222	3.324
0.210	73	0.617	30.904	27.778	3.126
0.250	87	0.562	37.495	33.333	4.162
0.290	101	0.513	43.506	38.889	4.618
0.320	115	0.479	47.665	44.444	3.221
0.370	129	0.427	53.989	50.000	3.989
0.420	143	0.380	59.625	55.556	4.070
0.490	157	0.324	66.501	61.111	5.390
0.520	171	0.302	69.125	66.667	2.458
0.620	185	0.240	76.671	72.222	4.449
0.690	199	0.204	81.010	77.778	3.232
0.770	213	0.170	85.183	83.333	1.849
0.890	227	0.129	90.164	88.889	1.275
1.030	241	0.093	94.477	94.444	0.032
1.320	255	0.048	100.000	100.000	0.000

10% DOT GAIN SETTING, BLACK [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.362	5.556	-3.194
0.120	31	0.759	13.390	11.111	2.279
0.140	45	0.724	17.457	16.667	0.791
0.170	59	0.676	23.218	22.222	0.996
0.210	73	0.617	30.306	27.778	2.528
0.250	87	0.562	36.770	33.333	3.436
0.290	101	0.513	42.665	38.889	3.776
0.310	115	0.490	45.415	44.444	0.970
0.360	129	0.437	51.761	50.000	1.761
0.410	143	0.389	57.416	55.556	1.861
0.470	157	0.339	63.397	61.111	2.286
0.530	171	0.295	68.607	66.667	1.940
0.600	185	0.251	73.841	72.222	1.618
0.700	199	0.200	79.996	77.778	2.218
0.800	213	0.158	84.885	83.333	1.552
0.960	227	0.110	90.704	88.889	1.815
1.150	241	0.071	95.333	94.444	0.889
1.500	255	0.032	100.000	100.000	0.000

10% DOT GAIN SETTING, MAGENTA [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	4.844	5.556	-0.712
0.110	31	0.776	11.703	11.111	0.592
0.130	45	0.741	16.020	16.667	-0.646
0.170	59	0.676	24.080	22.222	1.858
0.190	73	0.646	27.840	27.778	0.062
0.240	87	0.575	36.516	33.333	3.182
0.270	101	0.537	41.262	38.889	2.373
0.300	115	0.501	45.691	44.444	1.246
0.340	129	0.457	51.140	50.000	1.140
0.400	143	0.398	58.428	55.556	2.872
0.450	157	0.355	63.777	61.111	2.666
0.490	171	0.324	67.635	66.667	0.968
0.580	185	0.263	75.118	72.222	2.896
0.660	199	0.219	80.586	77.778	2.808
0.720	213	0.191	84.074	83.333	0.741
0.850	227	0.141	90.165	88.889	1.276
0.970	241	0.107	94.379	94.444	-0.066
1.210	255	0.062	100.000	100.000	0.000

10% DOT GAIN SETTING, YELLOW [count 3]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.080	17	0.832	7.898	5.556	2.342
0.120	31	0.759	17.614	11.111	6.503
0.140	45	0.724	22.147	16.667	5.480
0.160	59	0.692	26.476	22.222	4.254
0.190	73	0.646	32.607	27.778	4.829
0.220	87	0.603	38.328	33.333	4.995
0.250	101	0.562	43.668	38.889	4.779
0.280	115	0.525	48.651	44.444	4.206
0.310	129	0.490	53.301	50.000	3.301
0.360	143	0.437	60.373	55.556	4.817
0.400	157	0.398	65.472	61.111	4.361
0.440	171	0.363	70.123	66.667	3.456
0.500	185	0.316	76.343	72.222	4.121
0.550	199	0.282	80.908	77.778	3.131
0.640	213	0.229	87.912	83.333	4.579
0.710	227	0.195	92.440	88.889	3.551
0.770	241	0.170	95.780	94.444	1.336
0.860	255	0.138	100.000	100.000	0.000

10% DOT GAIN SETTING, CYAN [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.082	5.556	1.527
0.120	31	0.759	13.692	11.111	2.580
0.140	45	0.724	17.851	16.667	1.184
0.170	59	0.676	23.741	22.222	1.519
0.200	73	0.631	29.239	27.778	1.461
0.250	87	0.562	37.598	33.333	4.265
0.280	101	0.525	42.171	38.889	3.282
0.320	115	0.479	47.796	44.444	3.352
0.360	129	0.437	52.927	50.000	2.927
0.420	143	0.380	59.789	55.556	4.233
0.490	157	0.324	66.684	61.111	5.573
0.530	171	0.295	70.152	66.667	3.486
0.610	185	0.245	76.201	72.222	3.979
0.680	199	0.209	80.653	77.778	2.875
0.750	213	0.178	84.442	83.333	1.108
0.910	227	0.123	91.118	88.889	2.229
1.030	241	0.093	94.736	94.444	0.292
1.300	255	0.050	100.000	100.000	0.000

10% DOT GAIN SETTING, BLACK [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.110	31	0.776	11.295	11.111	0.183
0.140	45	0.724	17.473	16.667	0.806
0.170	59	0.676	23.239	22.222	1.016
0.200	73	0.631	28.620	27.778	0.842
0.240	87	0.575	35.240	33.333	1.907
0.280	101	0.525	41.278	38.889	2.389
0.310	115	0.490	45.455	44.444	1.010
0.360	129	0.437	51.806	50.000	1.806
0.390	143	0.407	55.280	55.556	-0.275
0.470	157	0.339	63.453	61.111	2.342
0.540	171	0.288	69.468	66.667	2.801
0.610	185	0.245	74.587	72.222	2.365
0.690	199	0.204	79.512	77.778	1.734
0.780	213	0.166	84.069	83.333	0.736
0.940	227	0.115	90.167	88.889	1.279
1.150	241	0.071	95.417	94.444	0.972
1.490	255	0.032	100.000	100.000	0.000

10% DOT GAIN SETTING, MAGENTA [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	4.819	5.556	-0.736
0.110	31	0.776	11.644	11.111	0.533
0.130	45	0.741	15.939	16.667	-0.727
0.160	59	0.692	22.022	22.222	-0.200
0.190	73	0.646	27.699	27.778	-0.079
0.230	87	0.589	34.683	33.333	1.350
0.270	101	0.537	41.053	38.889	2.164
0.300	115	0.501	45.459	44.444	1.015
0.350	129	0.447	52.160	50.000	2.160
0.400	143	0.398	58.132	55.556	2.576
0.450	157	0.355	63.454	61.111	2.343
0.500	171	0.316	68.198	66.667	1.531
0.580	185	0.263	74.738	72.222	2.516
0.650	199	0.224	79.552	77.778	1.774
0.720	213	0.191	83.649	83.333	0.316
0.860	227	0.138	90.104	88.889	1.215
0.970	241	0.107	93.901	94.444	-0.543
1.240	255	0.058	100.000	100.000	0.000

10% DOT GAIN SETTING, YELLOW [count 25]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.080	17	0.832	7.865	5.556	2.309
0.110	31	0.776	15.205	11.111	4.094
0.130	45	0.741	19.824	16.667	3.157
0.160	59	0.692	26.366	22.222	4.144
0.190	73	0.646	32.471	27.778	4.693
0.230	87	0.589	39.982	33.333	6.649
0.260	101	0.550	45.179	38.889	6.290
0.290	115	0.513	50.028	44.444	5.584
0.320	129	0.479	54.554	50.000	4.554
0.360	143	0.437	60.122	55.556	4.566
0.390	157	0.407	63.974	61.111	2.863
0.440	171	0.363	69.831	66.667	3.165
0.500	185	0.316	76.026	72.222	3.803
0.560	199	0.275	81.421	77.778	3.643
0.630	213	0.234	86.841	83.333	3.508
0.700	227	0.200	91.455	88.889	2.566
0.780	241	0.166	95.893	94.444	1.449
0.870	255	0.135	100.000	100.000	0.000

10% DOT GAIN SETTING, CYAN [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.113	5.556	1.558
0.120	31	0.759	13.752	11.111	2.640
0.140	45	0.724	17.929	16.667	1.262
0.170	59	0.676	23.846	22.222	1.623
0.200	73	0.631	29.367	27.778	1.589
0.240	87	0.575	36.160	33.333	2.827
0.280	101	0.525	42.356	38.889	3.467
0.320	115	0.479	48.006	44.444	3.561
0.350	129	0.447	51.915	50.000	1.915
0.410	143	0.389	58.968	55.556	3.412
0.480	157	0.331	66.054	61.111	4.943
0.500	171	0.316	67.877	66.667	1.211
0.600	185	0.251	75.836	72.222	3.613
0.670	199	0.214	80.411	77.778	2.633
0.730	213	0.186	83.787	83.333	0.453
0.880	227	0.132	90.441	88.889	1.552
1.010	241	0.098	94.614	94.444	0.169
1.270	255	0.054	100.000	100.000	0.000

10% DOT GAIN SETTING, BLACK [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.110	31	0.776	11.285	11.111	0.174
0.140	45	0.724	17.457	16.667	0.791
0.160	59	0.692	21.342	22.222	-0.880
0.200	73	0.631	28.595	27.778	0.817
0.240	87	0.575	35.209	33.333	1.876
0.280	101	0.525	41.241	38.889	2.353
0.310	115	0.490	45.415	44.444	0.970
0.360	129	0.437	51.761	50.000	1.761
0.390	143	0.407	55.232	55.556	-0.324
0.460	157	0.347	62.457	61.111	1.346
0.530	171	0.295	68.607	66.667	1.940
0.610	185	0.245	74.522	72.222	2.300
0.700	199	0.200	79.996	77.778	2.218
0.800	213	0.158	84.885	83.333	1.552
0.970	227	0.107	91.001	88.889	2.112
1.160	241	0.069	95.525	94.444	1.081
1.500	255	0.032	100.000	100.000	0.000

10% DOT GAIN SETTING, MAGENTA [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	4.835	5.556	-0.720
0.110	31	0.776	11.683	11.111	0.572
0.130	45	0.741	15.993	16.667	-0.674
0.170	59	0.676	24.038	22.222	1.816
0.190	73	0.646	27.792	27.778	0.014
0.230	87	0.589	34.799	33.333	1.466
0.280	101	0.525	42.698	38.889	3.809
0.300	115	0.501	45.612	44.444	1.167
0.350	129	0.447	52.335	50.000	2.335
0.400	143	0.398	58.326	55.556	2.771
0.460	157	0.347	64.663	61.111	3.552
0.500	171	0.316	68.426	66.667	1.759
0.580	185	0.263	74.988	72.222	2.766
0.650	199	0.224	79.818	77.778	2.040
0.710	213	0.195	83.381	83.333	0.048
0.840	227	0.145	89.603	88.889	0.714
0.980	241	0.105	94.516	94.444	0.072
1.220	255	0.060	100.000	100.000	0.000

10% DOT GAIN SETTING, YELLOW [count 30]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.080	17	0.832	7.898	5.556	2.342
0.110	31	0.776	15.268	11.111	4.157
0.130	45	0.741	19.907	16.667	3.240
0.170	59	0.676	28.567	22.222	6.344
0.190	73	0.646	32.607	27.778	4.829
0.230	87	0.589	40.149	33.333	6.816
0.250	101	0.562	43.668	38.889	4.779
0.280	115	0.525	48.651	44.444	4.206
0.320	129	0.479	54.781	50.000	4.781
0.350	143	0.447	59.023	55.556	3.467
0.400	157	0.398	65.472	61.111	4.361
0.440	171	0.363	70.123	66.667	3.456
0.500	185	0.316	76.343	72.222	4.121
0.550	199	0.282	80.908	77.778	3.131
0.640	213	0.229	87.912	83.333	4.579
0.700	227	0.200	91.837	88.889	2.948
0.780	241	0.166	96.293	94.444	1.849
0.860	255	0.138	100.000	100.000	0.000

10% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.086	17	0.820	6.166	5.556	0.610
0.116	31	0.766	12.836	11.111	1.725
0.136	45	0.731	17.034	16.667	0.368
0.168	59	0.679	23.361	22.222	1.139
0.200	73	0.631	29.239	27.778	1.461
0.240	87	0.575	36.002	33.333	2.669
0.276	101	0.530	41.579	38.889	2.690
0.312	115	0.488	46.712	44.444	2.268
0.352	129	0.445	51.938	50.000	1.938
0.408	143	0.391	58.491	55.556	2.936
0.474	157	0.336	65.204	61.111	4.093
0.512	171	0.308	68.631	66.667	1.964
0.592	185	0.256	74.936	72.222	2.713
0.672	199	0.213	80.180	77.778	2.402
0.744	213	0.180	84.140	83.333	0.807
0.872	227	0.134	89.747	88.889	0.859
1.036	241	0.092	94.892	94.444	0.448
1.300	255	0.050	100.000	100.000	0.000

10% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.064	17	0.863	0.949	5.556	-4.606
0.110	31	0.776	11.262	11.111	0.151
0.140	45	0.724	17.422	16.667	0.756
0.166	59	0.682	22.428	22.222	0.205
0.206	73	0.622	29.566	27.778	1.788
0.246	87	0.568	36.077	33.333	2.743
0.288	101	0.515	42.297	38.889	3.408
0.314	115	0.485	45.857	44.444	1.412
0.364	129	0.433	52.132	50.000	2.132
0.400	143	0.398	56.223	55.556	0.667
0.470	157	0.339	63.269	61.111	2.158
0.538	171	0.290	69.108	66.667	2.442
0.616	185	0.242	74.772	72.222	2.549
0.710	199	0.195	80.374	77.778	2.596
0.810	213	0.155	85.142	83.333	1.809
0.980	227	0.105	91.107	88.889	2.219
1.178	241	0.066	95.666	94.444	1.221
1.524	255	0.030	100.000	100.000	0.000

10% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.076	17	0.839	3.882	5.556	-1.674
0.110	31	0.776	11.671	11.111	0.560
0.130	45	0.741	15.976	16.667	-0.690
0.166	59	0.682	23.243	22.222	1.021
0.190	73	0.646	27.763	27.778	-0.014
0.232	87	0.586	35.097	33.333	1.764
0.272	101	0.535	41.452	38.889	2.563
0.302	115	0.499	45.849	44.444	1.404
0.350	129	0.447	52.281	50.000	2.281
0.400	143	0.398	58.267	55.556	2.711
0.460	157	0.347	64.597	61.111	3.486
0.502	171	0.315	68.535	66.667	1.869
0.580	185	0.263	74.912	72.222	2.690
0.652	199	0.223	79.864	77.778	2.086
0.716	213	0.192	83.626	83.333	0.293
0.846	227	0.143	89.756	88.889	0.867
0.974	241	0.106	94.240	94.444	-0.204
1.226	255	0.059	100.000	100.000	0.000

10% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.052	3	0.887	0.000	0.000	0.000
0.080	17	0.832	7.345	5.556	1.790
0.112	31	0.773	15.180	11.111	4.069
0.136	45	0.731	20.689	16.667	4.022
0.164	59	0.685	26.742	22.222	4.520
0.194	73	0.640	32.810	27.778	5.032
0.226	87	0.594	38.836	33.333	5.502
0.254	101	0.557	43.756	38.889	4.867
0.284	115	0.520	48.688	44.444	4.243
0.322	129	0.476	54.465	50.000	4.465
0.362	143	0.435	60.024	55.556	4.468
0.402	157	0.396	65.094	61.111	3.983
0.446	171	0.358	70.157	66.667	3.490
0.506	185	0.312	76.284	72.222	4.062
0.562	199	0.274	81.288	77.778	3.510
0.644	213	0.227	87.543	83.333	4.209
0.712	227	0.194	91.905	88.889	3.016
0.784	241	0.164	95.837	94.444	1.393
0.876	255	0.133	100.000	100.000	0.000

Appendix Submenu: 15% Tables, Count Numbers 59,60, 3, 25, 30

15% DOT GAIN SETTING, MAGENTA [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.035	5.556	1.480
0.130	31	0.741	15.691	11.111	4.580
0.160	45	0.692	21.679	16.667	5.012
0.190	59	0.646	27.267	22.222	5.045
0.230	73	0.589	34.143	27.778	6.365
0.270	87	0.537	40.413	33.333	7.080
0.320	101	0.479	47.481	38.889	8.592
0.350	115	0.447	51.347	44.444	6.903
0.410	129	0.389	58.323	50.000	8.323
0.460	143	0.347	63.443	55.556	7.887
0.510	157	0.309	68.006	61.111	6.895
0.570	171	0.269	72.832	66.667	6.166
0.660	185	0.219	78.929	72.222	6.707
0.720	199	0.191	82.346	77.778	4.568
0.830	213	0.148	87.505	83.333	4.172
0.940	227	0.115	91.511	88.889	2.622
1.110	241	0.078	96.012	94.444	1.567
1.350	255	0.045	100.000	100.000	0.000

15% DOT GAIN SETTING, YELLOW [count 59]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.090	17	0.813	10.135	5.556	4.579
0.120	31	0.759	17.147	11.111	6.035
0.160	45	0.692	25.773	16.667	9.106
0.180	59	0.661	29.797	22.222	7.575
0.220	73	0.603	37.310	27.778	9.532
0.250	87	0.562	42.508	33.333	9.175
0.280	101	0.525	47.359	38.889	8.470
0.320	115	0.479	53.327	44.444	8.882
0.370	129	0.427	60.054	50.000	10.054
0.410	143	0.389	64.904	55.556	9.349
0.450	157	0.355	69.329	61.111	8.217
0.500	171	0.316	74.315	66.667	7.649
0.570	185	0.269	80.399	72.222	8.177
0.630	199	0.234	84.888	77.778	7.110
0.700	213	0.200	89.398	83.333	6.064
0.790	227	0.162	94.224	88.889	5.335
0.840	241	0.145	96.504	94.444	2.059
0.930	255	0.117	100.000	100.000	0.000

15% DOT GAIN SETTING, CYAN [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.100	17	0.794	9.286	5.556	3.731
0.130	31	0.741	15.711	11.111	4.600
0.160	45	0.692	21.706	16.667	5.040
0.200	59	0.631	29.083	22.222	6.860
0.230	73	0.589	34.186	27.778	6.408
0.280	87	0.525	41.945	33.333	8.612
0.320	101	0.479	47.541	38.889	8.652
0.370	115	0.427	53.848	44.444	9.404
0.440	129	0.363	61.543	50.000	11.543
0.490	143	0.324	66.327	55.556	10.772
0.530	157	0.295	69.778	61.111	8.666
0.580	171	0.263	73.667	66.667	7.000
0.660	185	0.219	79.029	72.222	6.806
0.720	199	0.191	82.449	77.778	4.672
0.830	213	0.148	87.616	83.333	4.282
0.960	227	0.110	92.252	88.889	3.363
1.120	241	0.076	96.347	94.444	1.902
1.340	255	0.046	100.000	100.000	0.000

15% DOT GAIN SETTING, BLACK [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	6.873	5.556	1.317
0.120	31	0.759	13.287	11.111	2.176
0.150	45	0.708	19.273	16.667	2.606
0.190	59	0.646	26.637	22.222	4.415
0.230	73	0.589	33.354	27.778	5.576
0.270	87	0.537	39.479	33.333	6.146
0.300	101	0.501	43.717	38.889	4.828
0.340	115	0.457	48.930	44.444	4.486
0.400	129	0.398	55.903	50.000	5.903
0.450	143	0.355	61.022	55.556	5.466
0.520	157	0.302	67.266	61.111	6.155
0.580	171	0.263	71.873	66.667	5.207
0.670	185	0.214	77.694	72.222	5.471
0.740	199	0.182	81.456	77.778	3.678
0.880	213	0.132	87.385	83.333	4.051
1.060	227	0.087	92.673	88.889	3.784
1.300	241	0.050	97.044	94.444	2.600
1.600	255	0.025	100.000	100.000	0.000

15% DOT GAIN SETTING, MAGENTA [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.035	5.556	1.480
0.120	31	0.759	13.601	11.111	2.490
0.160	45	0.692	21.679	16.667	5.012
0.190	59	0.646	27.267	22.222	5.045
0.230	73	0.589	34.143	27.778	6.365
0.280	87	0.525	41.893	33.333	8.559
0.320	101	0.479	47.481	38.889	8.592
0.350	115	0.447	51.347	44.444	6.903
0.400	129	0.398	57.226	50.000	7.226
0.450	143	0.355	62.466	55.556	6.910
0.500	157	0.316	67.135	61.111	6.024
0.560	171	0.275	72.074	66.667	5.407
0.640	185	0.229	77.681	72.222	5.459
0.710	199	0.195	81.808	77.778	4.031
0.810	213	0.155	86.662	83.333	3.328
0.930	227	0.117	91.187	88.889	2.298
1.090	241	0.081	95.569	94.444	1.124
1.350	255	0.045	100.000	100.000	0.000

15% DOT GAIN SETTING, YELLOW [count 60]

density	step	reflectance	dot area	relative drive	gain
0.040	3	0.912	0.000	0.000	0.000
0.080	17	0.832	10.171	5.556	4.615
0.110	31	0.776	17.207	11.111	6.096
0.140	45	0.724	23.774	16.667	7.108
0.170	59	0.676	29.903	22.222	7.681
0.210	73	0.617	37.443	27.778	9.665
0.240	87	0.575	42.659	33.333	9.325
0.270	101	0.537	47.527	38.889	8.638
0.300	115	0.501	52.070	44.444	7.626
0.340	129	0.457	57.659	50.000	7.659
0.390	143	0.407	63.960	55.556	8.404
0.440	157	0.363	69.575	61.111	8.464
0.490	171	0.324	74.579	66.667	7.912
0.550	185	0.282	79.871	72.222	7.649
0.610	199	0.245	84.481	77.778	6.703
0.680	213	0.209	89.112	83.333	5.779
0.770	227	0.170	94.069	88.889	5.180
0.830	241	0.148	96.846	94.444	2.402
0.910	255	0.123	100.000	100.000	0.000

15% DOT GAIN SETTING, CYAN [count 3]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.100	17	0.794	7.035	5.556	1.480
0.130	31	0.741	13.601	11.111	2.490
0.160	45	0.692	19.729	16.667	3.062
0.210	59	0.617	29.046	22.222	6.824
0.240	73	0.575	34.143	27.778	6.365
0.270	87	0.537	38.899	33.333	5.566
0.320	101	0.479	46.132	38.889	7.243
0.370	115	0.427	52.578	44.444	8.133
0.430	129	0.372	59.395	50.000	9.395
0.490	143	0.324	65.332	55.556	9.776
0.530	157	0.295	68.858	61.111	7.747
0.570	171	0.269	72.074	66.667	5.407
0.660	185	0.219	78.312	72.222	6.090
0.720	199	0.191	81.808	77.778	4.031
0.830	213	0.148	87.088	83.333	3.755
0.960	227	0.110	91.827	88.889	2.938
1.130	241	0.074	96.225	94.444	1.781
1.360	255	0.044	100.000	100.000	0.000

15% DOT GAIN SETTING, BLACK [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.351	5.556	-3.205
0.130	31	0.741	15.372	11.111	4.261
0.160	45	0.692	21.239	16.667	4.572
0.190	59	0.646	26.714	22.222	4.492
0.230	73	0.589	33.449	27.778	5.672
0.270	87	0.537	39.593	33.333	6.259
0.300	101	0.501	43.842	38.889	4.954
0.340	115	0.457	49.071	44.444	4.627
0.400	129	0.398	56.064	50.000	6.064
0.440	143	0.363	60.217	55.556	4.662
0.500	157	0.316	65.772	61.111	4.661
0.550	171	0.282	69.849	66.667	3.183
0.650	185	0.224	76.722	72.222	4.500
0.730	199	0.186	81.188	77.778	3.410
0.860	213	0.138	86.899	83.333	3.566
1.010	227	0.098	91.679	88.889	2.790
1.240	241	0.058	96.443	94.444	1.998
1.560	255	0.028	100.000	100.000	0.000

15% DOT GAIN SETTING, MAGENTA [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.044	5.556	1.489
0.130	31	0.741	15.711	11.111	4.600
0.160	45	0.692	21.706	16.667	5.040
0.190	59	0.646	27.302	22.222	5.080
0.230	73	0.589	34.186	27.778	6.408
0.270	87	0.537	40.464	33.333	7.131
0.310	101	0.490	46.190	38.889	7.301
0.340	115	0.457	50.151	44.444	5.707
0.410	129	0.389	58.396	50.000	8.396
0.460	143	0.347	63.523	55.556	7.967
0.510	157	0.309	68.092	61.111	6.981
0.570	171	0.269	72.924	66.667	6.257
0.640	185	0.229	77.779	72.222	5.557
0.710	199	0.195	81.912	77.778	4.134
0.800	213	0.158	86.334	83.333	3.001
0.910	227	0.123	90.631	88.889	1.742
1.070	241	0.085	95.225	94.444	0.781
1.340	255	0.046	100.000	100.000	0.000

15% DOT GAIN SETTING, YELLOW [count 3]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.090	17	0.813	10.246	5.556	4.691
0.130	31	0.741	19.591	11.111	8.480
0.160	45	0.692	26.056	16.667	9.389
0.190	59	0.646	32.089	22.222	9.867
0.220	73	0.603	37.720	27.778	9.942
0.260	87	0.550	44.647	33.333	11.314
0.280	101	0.525	47.879	38.889	8.990
0.320	115	0.479	53.912	44.444	9.468
0.360	129	0.437	59.415	50.000	9.415
0.410	143	0.389	65.617	55.556	10.062
0.440	157	0.363	69.010	61.111	7.899
0.500	171	0.316	75.131	66.667	8.465
0.550	185	0.282	79.624	72.222	7.402
0.620	199	0.240	85.106	77.778	7.328
0.680	213	0.209	89.151	83.333	5.817
0.770	227	0.170	94.260	88.889	5.371
0.820	241	0.151	96.673	94.444	2.229
0.900	255	0.126	100.000	100.000	0.000

15% DOT GAIN SETTING, CYAN [count 25]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.100	17	0.794	7.044	5.556	1.489
0.130	31	0.741	13.618	11.111	2.507
0.160	45	0.692	19.754	16.667	3.087
0.200	59	0.631	27.302	22.222	5.080
0.230	73	0.589	32.524	27.778	4.746
0.270	87	0.537	38.948	33.333	5.615
0.320	101	0.479	46.190	38.889	7.301
0.360	115	0.437	51.412	44.444	6.968
0.430	129	0.372	59.469	50.000	9.469
0.490	143	0.324	65.414	55.556	9.858
0.520	157	0.302	68.092	61.111	6.981
0.580	171	0.263	72.924	66.667	6.257
0.650	185	0.224	77.779	72.222	5.557
0.720	199	0.191	81.912	77.778	4.134
0.830	213	0.148	87.198	83.333	3.865
0.950	227	0.112	91.626	88.889	2.737
1.130	241	0.074	96.347	94.444	1.902
1.350	255	0.045	100.000	100.000	0.000

15% DOT GAIN SETTING, BLACK [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.345	5.556	-3.210
0.130	31	0.741	15.339	11.111	4.228
0.150	45	0.708	19.286	16.667	2.619
0.190	59	0.646	26.656	22.222	4.433
0.230	73	0.589	33.377	27.778	5.599
0.270	87	0.537	39.506	33.333	6.173
0.300	101	0.501	43.747	38.889	4.858
0.340	115	0.457	48.964	44.444	4.520
0.390	129	0.407	54.845	50.000	4.845
0.430	143	0.372	59.086	55.556	3.530
0.510	157	0.309	66.481	61.111	5.370
0.570	171	0.269	71.198	66.667	4.532
0.660	185	0.219	77.158	72.222	4.936
0.740	199	0.182	81.513	77.778	3.735
0.880	213	0.132	87.445	83.333	4.112
1.020	227	0.095	91.743	88.889	2.854
1.280	241	0.052	96.832	94.444	2.388
1.590	255	0.026	100.000	100.000	0.000

15% DOT GAIN SETTING, MAGENTA [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.018	5.556	1.463
0.130	31	0.741	15.653	11.111	4.542
0.150	45	0.708	19.681	16.667	3.014
0.190	59	0.646	27.201	22.222	4.979
0.230	73	0.589	34.060	27.778	6.282
0.270	87	0.537	40.315	33.333	6.982
0.310	101	0.490	46.020	38.889	7.131
0.350	115	0.447	51.223	44.444	6.778
0.400	129	0.398	57.087	50.000	7.087
0.450	143	0.355	62.314	55.556	6.758
0.510	157	0.309	67.841	61.111	6.730
0.560	171	0.275	71.899	66.667	5.232
0.650	185	0.224	78.122	72.222	5.900
0.720	199	0.191	82.146	77.778	4.368
0.810	213	0.155	86.451	83.333	3.118
0.920	227	0.120	90.635	88.889	1.746
1.070	241	0.085	94.874	94.444	0.430
1.370	255	0.043	100.000	100.000	0.000

15% DOT GAIN SETTING, YELLOW [count 25]

density	step	reflectance	dot area	relative drive	gain
0.040	3	0.912	0.000	0.000	0.000
0.090	17	0.813	12.664	5.556	7.108
0.120	31	0.759	19.591	11.111	8.480
0.160	45	0.692	28.113	16.667	11.447
0.190	59	0.646	34.009	22.222	11.787
0.230	73	0.589	41.263	27.778	13.485
0.250	87	0.562	44.647	33.333	11.314
0.280	101	0.525	49.440	38.889	10.551
0.320	115	0.479	55.336	44.444	10.891
0.350	129	0.447	59.415	50.000	9.415
0.400	143	0.398	65.617	55.556	10.062
0.430	157	0.372	69.010	61.111	7.899
0.490	171	0.324	75.131	66.667	8.465
0.550	185	0.282	80.463	72.222	8.240
0.610	199	0.245	85.106	77.778	7.328
0.680	213	0.209	89.772	83.333	6.439
0.760	227	0.174	94.260	88.889	5.371
0.820	241	0.151	97.123	94.444	2.679
0.890	255	0.129	100.000	100.000	0.000

15% DOT GAIN SETTING, CYAN [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.100	17	0.794	9.263	5.556	3.708
0.140	31	0.724	17.711	11.111	6.600
0.160	45	0.692	21.652	16.667	4.986
0.200	59	0.631	29.010	22.222	6.788
0.230	73	0.589	34.101	27.778	6.323
0.270	87	0.537	40.363	33.333	7.030
0.320	101	0.479	47.423	38.889	8.534
0.360	115	0.437	52.513	44.444	8.069
0.430	129	0.372	60.368	50.000	10.368
0.480	143	0.331	65.251	55.556	9.696
0.530	157	0.295	69.604	61.111	8.493
0.570	171	0.269	72.743	66.667	6.076
0.650	185	0.224	78.216	72.222	5.994
0.730	199	0.186	82.769	77.778	4.991
0.830	213	0.148	87.398	83.333	4.064
0.940	227	0.115	91.398	88.889	2.509
1.140	241	0.072	96.520	94.444	2.075
1.360	255	0.044	100.000	100.000	0.000

15% DOT GAIN SETTING, BLACK [count 30]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.070	17	0.851	4.638	5.556	-0.918
0.130	31	0.741	17.335	11.111	6.224
0.150	45	0.708	21.193	16.667	4.526
0.190	59	0.646	28.394	22.222	6.172
0.230	73	0.589	34.962	27.778	7.185
0.280	87	0.525	42.366	33.333	9.033
0.300	101	0.501	45.097	38.889	6.208
0.350	115	0.447	51.398	44.444	6.954
0.400	129	0.398	57.014	50.000	7.014
0.450	143	0.355	62.020	55.556	6.464
0.520	157	0.302	68.126	61.111	7.015
0.570	171	0.269	71.923	66.667	5.256
0.660	185	0.219	77.747	72.222	5.525
0.750	199	0.178	82.482	77.778	4.704
0.900	213	0.126	88.486	83.333	5.153
1.050	227	0.089	92.737	88.889	3.848
1.300	241	0.050	97.247	94.444	2.802
1.580	255	0.026	100.000	100.000	0.000

15% DOT GAIN SETTING, MAGENTA [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.044	5.556	1.489
0.130	31	0.741	15.711	11.111	4.600
0.160	45	0.692	21.706	16.667	5.040
0.190	59	0.646	27.302	22.222	5.080
0.230	73	0.589	34.186	27.778	6.408
0.270	87	0.537	40.464	33.333	7.131
0.310	101	0.490	46.190	38.889	7.301
0.350	115	0.447	51.412	44.444	6.968
0.400	129	0.398	57.298	50.000	7.298
0.460	143	0.347	63.523	55.556	7.967
0.510	157	0.309	68.092	61.111	6.981
0.560	171	0.275	72.164	66.667	5.498
0.640	185	0.229	77.779	72.222	5.557
0.720	199	0.191	82.449	77.778	4.672
0.810	213	0.155	86.771	83.333	3.438
0.920	227	0.120	90.970	88.889	2.081
1.070	241	0.085	95.225	94.444	0.781
1.340	255	0.046	100.000	100.000	0.000

15% DOT GAIN SETTING, YELLOW [count 30]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.090	17	0.813	10.208	5.556	4.652
0.120	31	0.759	17.270	11.111	6.159
0.160	45	0.692	25.959	16.667	9.292
0.190	59	0.646	31.969	22.222	9.747
0.220	73	0.603	37.579	27.778	9.801
0.260	87	0.550	44.481	33.333	11.147
0.280	101	0.525	47.700	38.889	8.811
0.310	115	0.490	52.260	44.444	7.815
0.350	129	0.447	57.869	50.000	7.869
0.400	143	0.398	64.193	55.556	8.637
0.440	157	0.363	68.752	61.111	7.641
0.490	171	0.324	73.892	66.667	7.225
0.550	185	0.282	79.327	72.222	7.105
0.610	199	0.245	84.061	77.778	6.284
0.680	213	0.209	88.818	83.333	5.485
0.760	227	0.174	93.393	88.889	4.505
0.830	241	0.148	96.761	94.444	2.316
0.910	255	0.123	100.000	100.000	0.000

Appendix Submenu: 20% Tables, Count Numbers 59, 60, 3, 25, 30

20% DOT GAIN SETTING, BLACK [count 59]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.080	17	0.832	6.903	5.556	1.348
0.130	31	0.741	17.400	11.111	6.289
0.170	45	0.676	24.969	16.667	8.302
0.210	59	0.617	31.872	22.222	9.650
0.260	73	0.550	39.654	27.778	11.876
0.300	87	0.501	45.265	33.333	11.931
0.340	101	0.457	50.382	38.889	11.493
0.400	115	0.398	57.227	44.444	12.782
0.450	129	0.355	62.251	50.000	12.251
0.510	143	0.309	67.564	55.556	12.008
0.590	157	0.257	73.597	61.111	12.486
0.650	171	0.224	77.446	66.667	10.779
0.760	185	0.174	83.259	72.222	11.036
0.860	199	0.138	87.406	77.778	9.628
1.000	213	0.100	91.820	83.333	8.487
1.170	227	0.068	95.579	88.889	6.690
1.340	241	0.046	98.120	94.444	3.676
1.530	255	0.030	100.000	100.000	0.000

20% DOT GAIN SETTING, MAGENTA [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.100	17	0.794	9.391	5.556	3.836
0.140	31	0.724	17.957	11.111	6.845
0.180	45	0.661	25.768	16.667	9.101
0.210	59	0.617	31.172	22.222	8.950
0.260	73	0.550	39.390	27.778	11.612
0.290	87	0.513	43.885	33.333	10.551
0.340	101	0.457	50.719	38.889	11.831
0.400	115	0.398	57.947	44.444	13.503
0.450	129	0.355	63.253	50.000	13.253
0.500	143	0.316	67.982	55.556	12.426
0.540	157	0.288	71.391	61.111	10.280
0.600	171	0.251	75.952	66.667	9.285
0.690	185	0.204	81.713	72.222	9.491
0.760	199	0.174	85.438	77.778	7.660
0.850	213	0.141	89.424	83.333	6.091
0.960	227	0.110	93.297	88.889	4.409
1.090	241	0.081	96.773	94.444	2.329
1.260	255	0.055	100.000	100.000	0.000

20% DOT GAIN SETTING, YELLOW [count 59]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.100	17	0.794	12.664	5.556	7.108
0.130	31	0.741	19.591	11.111	8.480
0.260	45	0.550	44.647	16.667	27.980
0.210	59	0.617	35.886	22.222	13.664
0.240	73	0.575	41.263	27.778	13.485
0.280	87	0.525	47.879	33.333	14.545
0.300	101	0.501	50.965	38.889	12.076
0.340	115	0.457	56.727	44.444	12.282
0.390	129	0.407	63.221	50.000	13.221
0.430	143	0.372	67.905	55.556	12.349
0.480	157	0.331	73.184	61.111	12.073
0.540	171	0.288	78.767	66.667	12.100
0.590	185	0.257	82.865	72.222	10.642
0.650	199	0.224	87.198	77.778	9.420
0.700	213	0.200	90.379	83.333	7.046
0.800	227	0.158	95.741	88.889	6.852
0.820	241	0.151	96.673	94.444	2.229
0.900	255	0.126	100.000	100.000	0.000

20% DOT GAIN SETTING, CYAN [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.110	17	0.776	11.539	5.556	5.983
0.140	31	0.724	17.851	11.111	6.740
0.180	45	0.661	25.616	16.667	8.950
0.220	59	0.603	32.699	22.222	10.476
0.270	73	0.537	40.681	27.778	12.904
0.300	87	0.501	45.048	33.333	11.715
0.360	101	0.437	52.927	38.889	14.038
0.410	115	0.389	58.710	44.444	14.266
0.460	129	0.347	63.864	50.000	13.864
0.520	143	0.302	69.315	55.556	13.759
0.570	157	0.269	73.316	61.111	12.205
0.640	171	0.229	78.197	66.667	11.530
0.690	185	0.204	81.232	72.222	9.010
0.800	199	0.158	86.798	77.778	9.020
0.880	213	0.132	90.046	83.333	6.713
1.000	227	0.100	93.923	88.889	5.034
1.150	241	0.071	97.481	94.444	3.037
1.300	255	0.050	100.000	100.000	0.000

20% DOT GAIN SETTING, BLACK [count 60]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.080	17	0.832	6.909	5.556	1.353
0.130	31	0.741	17.414	11.111	6.303
0.170	45	0.676	24.989	16.667	8.322
0.210	59	0.617	31.898	22.222	9.676
0.260	73	0.550	39.685	27.778	11.907
0.310	87	0.490	46.626	33.333	13.292
0.350	101	0.447	51.631	38.889	12.742
0.400	115	0.398	57.272	44.444	12.828
0.460	129	0.347	63.238	50.000	13.238
0.510	143	0.309	67.617	55.556	12.062
0.590	157	0.257	73.655	61.111	12.544
0.650	171	0.224	77.507	66.667	10.841
0.780	185	0.166	84.233	72.222	12.011
0.870	199	0.135	87.841	77.778	10.063
1.020	213	0.095	92.416	83.333	9.083
1.220	227	0.060	96.509	88.889	7.620
1.370	241	0.043	98.553	94.444	4.109
1.520	255	0.030	100.000	100.000	0.000

20% DOT GAIN SETTING, MAGENTA [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.100	17	0.794	9.391	5.556	3.836
0.140	31	0.724	17.957	11.111	6.845
0.180	45	0.661	25.768	16.667	9.101
0.210	59	0.617	31.172	22.222	8.950
0.260	73	0.550	39.390	27.778	11.612
0.290	87	0.513	43.885	33.333	10.551
0.350	101	0.447	51.994	38.889	13.106
0.390	115	0.407	56.811	44.444	12.367
0.440	129	0.363	62.240	50.000	12.240
0.500	143	0.316	67.982	55.556	12.426
0.550	157	0.282	72.196	61.111	11.085
0.610	171	0.245	76.653	66.667	9.986
0.680	185	0.209	81.131	72.222	8.908
0.770	199	0.170	85.923	77.778	8.145
0.840	213	0.145	89.021	83.333	5.688
0.950	227	0.112	92.984	88.889	4.096
1.120	241	0.076	97.438	94.444	2.994
1.260	255	0.055	100.000	100.000	0.000

20% DOT GAIN SETTING, YELLOW [count 60]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.100	17	0.794	12.664	5.556	7.108
0.130	31	0.741	19.591	11.111	8.480
0.160	45	0.692	26.056	16.667	9.389
0.200	59	0.631	34.009	22.222	11.787
0.230	73	0.589	39.512	27.778	11.734
0.280	87	0.525	47.879	33.333	14.545
0.310	101	0.490	52.455	38.889	13.567
0.340	115	0.457	56.727	44.444	12.282
0.390	129	0.407	63.221	50.000	13.221
0.430	143	0.372	67.905	55.556	12.349
0.470	157	0.339	72.176	61.111	11.065
0.540	171	0.288	78.767	66.667	12.100
0.600	185	0.251	83.629	72.222	11.407
0.660	199	0.219	87.864	77.778	10.086
0.720	213	0.191	91.553	83.333	8.219
0.810	227	0.155	96.212	88.889	7.323
0.850	241	0.141	97.993	94.444	3.548
0.900	255	0.126	100.000	100.000	0.000

20% DOT GAIN SETTING, CYAN [count 3]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.110	17	0.776	9.349	5.556	3.794
0.140	31	0.724	15.818	11.111	4.706
0.170	45	0.676	21.854	16.667	5.187
0.210	59	0.617	29.281	22.222	7.058
0.260	73	0.550	37.652	27.778	9.874
0.290	87	0.513	42.231	33.333	8.897
0.350	101	0.447	50.492	38.889	11.604
0.410	115	0.389	57.688	44.444	13.244
0.450	129	0.355	61.962	50.000	11.962
0.510	143	0.309	67.677	55.556	12.122
0.560	157	0.275	71.873	61.111	10.762
0.610	171	0.245	75.612	66.667	8.945
0.680	185	0.209	80.174	72.222	7.952
0.760	199	0.174	84.562	77.778	6.784
0.840	213	0.145	88.212	83.333	4.879
0.970	227	0.107	92.880	88.889	3.991
1.130	241	0.074	97.002	94.444	2.558
1.300	255	0.050	100.000	100.000	0.000

20% DOT GAIN SETTING, BLACK [count 3]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.080	17	0.832	6.920	5.556	1.365
0.130	31	0.741	17.443	11.111	6.331
0.170	45	0.676	25.030	16.667	8.364
0.210	59	0.617	31.951	22.222	9.728
0.260	73	0.550	39.751	27.778	11.973
0.290	87	0.513	44.018	33.333	10.684
0.340	101	0.457	50.506	38.889	11.617
0.390	115	0.407	56.288	44.444	11.844
0.440	129	0.363	61.442	50.000	11.442
0.490	143	0.324	66.035	55.556	10.480
0.570	157	0.269	72.368	61.111	11.257
0.630	171	0.234	76.408	66.667	9.742
0.720	185	0.191	81.513	72.222	9.290
0.810	199	0.155	85.661	77.778	7.884
0.940	213	0.115	90.322	83.333	6.989
1.120	227	0.076	94.854	88.889	5.965
1.310	241	0.049	97.981	94.444	3.537
1.500	255	0.032	100.000	100.000	0.000

20% DOT GAIN SETTING, MAGENTA [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.100	17	0.794	9.437	5.556	3.881
0.130	31	0.741	15.966	11.111	4.854
0.170	45	0.676	23.998	16.667	7.331
0.200	59	0.631	29.555	22.222	7.332
0.250	73	0.562	38.004	27.778	10.226
0.280	87	0.525	42.626	33.333	9.293
0.330	101	0.468	49.654	38.889	10.765
0.380	115	0.417	55.917	44.444	11.473
0.430	129	0.372	61.500	50.000	11.500
0.490	143	0.324	67.404	55.556	11.848
0.530	157	0.295	70.910	61.111	9.799
0.590	171	0.257	75.599	66.667	8.932
0.660	185	0.219	80.311	72.222	8.089
0.730	199	0.186	84.321	77.778	6.543
0.820	213	0.151	88.613	83.333	5.280
0.910	227	0.123	92.101	88.889	3.213
1.070	241	0.085	96.770	94.444	2.326
1.230	255	0.059	100.000	100.000	0.000

20% DOT GAIN SETTING, YELLOW [count 3]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.100	17	0.794	12.763	5.556	7.207
0.140	31	0.724	21.966	11.111	10.855
0.170	45	0.676	28.333	16.667	11.666
0.220	59	0.603	38.014	22.222	15.792
0.240	73	0.575	41.586	27.778	13.808
0.280	87	0.525	48.253	33.333	14.919
0.310	101	0.490	52.865	38.889	13.976
0.350	115	0.447	58.540	44.444	14.096
0.400	129	0.398	64.936	50.000	14.936
0.430	143	0.372	68.435	55.556	12.880
0.470	157	0.339	72.740	61.111	11.629
0.520	171	0.302	77.592	66.667	10.926
0.580	185	0.263	82.724	72.222	10.501
0.640	199	0.229	87.193	77.778	9.415
0.700	213	0.200	91.085	83.333	7.752
0.780	227	0.166	95.505	88.889	6.617
0.830	241	0.148	97.882	94.444	3.437
0.880	255	0.132	100.000	100.000	0.000

20% DOT GAIN SETTING, CYAN [count 25]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.110	17	0.776	9.349	5.556	3.794
0.140	31	0.724	15.818	11.111	4.706
0.180	45	0.661	23.775	16.667	7.109
0.220	59	0.603	31.033	22.222	8.811
0.260	73	0.550	37.652	27.778	9.874
0.300	87	0.501	43.688	33.333	10.355
0.360	101	0.437	51.762	38.889	12.873
0.410	115	0.389	57.688	44.444	13.244
0.470	129	0.339	63.955	50.000	13.955
0.520	143	0.302	68.556	55.556	13.000
0.570	157	0.269	72.655	61.111	11.544
0.610	171	0.245	75.612	66.667	8.945
0.680	185	0.209	80.174	72.222	7.952
0.780	199	0.166	85.538	77.778	7.761
0.860	213	0.138	89.024	83.333	5.691
0.990	227	0.102	93.482	88.889	4.593
1.130	241	0.074	97.002	94.444	2.558
1.300	255	0.050	100.000	100.000	0.000

20% DOT GAIN SETTING, BLACK [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	4.662	5.556	-0.893
0.130	31	0.741	15.421	11.111	4.310
0.170	45	0.676	23.179	16.667	6.512
0.210	59	0.617	30.254	22.222	8.032
0.260	73	0.550	38.230	27.778	10.452
0.300	87	0.501	43.981	33.333	10.648
0.340	101	0.457	49.226	38.889	10.337
0.390	115	0.407	55.138	44.444	10.694
0.450	129	0.355	61.391	50.000	11.391
0.500	143	0.316	65.980	55.556	10.424
0.580	157	0.263	72.308	61.111	11.197
0.630	171	0.234	75.710	66.667	9.043
0.730	185	0.186	81.444	72.222	9.222
0.830	199	0.148	85.999	77.778	8.222
0.960	213	0.110	90.550	83.333	7.217
1.140	227	0.072	94.976	88.889	6.087
1.320	241	0.048	97.899	94.444	3.455
1.520	255	0.030	100.000	100.000	0.000

20% DOT GAIN SETTING, MAGENTA [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.100	17	0.794	9.349	5.556	3.794
0.140	31	0.724	17.876	11.111	6.765
0.170	45	0.676	23.775	16.667	7.109
0.210	59	0.617	31.033	22.222	8.811
0.250	73	0.562	37.652	27.778	9.874
0.290	87	0.513	43.688	33.333	10.355
0.340	101	0.457	50.492	38.889	11.604
0.380	115	0.417	55.399	44.444	10.955
0.440	129	0.363	61.962	50.000	11.962
0.490	143	0.324	66.779	55.556	11.223
0.540	157	0.288	71.072	61.111	9.961
0.610	171	0.245	76.310	66.667	9.643
0.690	185	0.204	81.348	72.222	9.126
0.770	199	0.170	85.538	77.778	7.761
0.860	213	0.138	89.416	83.333	6.083
0.970	227	0.107	93.184	88.889	4.296
1.130	241	0.074	97.213	94.444	2.768
1.290	255	0.051	100.000	100.000	0.000

20% DOT GAIN SETTING, YELLOW [count 25]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.100	17	0.794	12.712	5.556	7.157
0.130	31	0.741	19.666	11.111	8.555
0.160	45	0.692	26.156	16.667	9.489
0.200	59	0.631	34.140	22.222	11.918
0.230	73	0.589	39.664	27.778	11.886
0.280	87	0.525	48.063	33.333	14.729
0.300	101	0.501	51.161	38.889	12.272
0.340	115	0.457	56.945	44.444	12.500
0.390	129	0.407	63.465	50.000	13.465
0.420	143	0.380	67.031	55.556	11.475
0.470	157	0.339	72.454	61.111	11.343
0.520	171	0.302	77.287	66.667	10.620
0.590	185	0.257	83.183	72.222	10.961
0.640	199	0.229	86.850	77.778	9.072
0.700	213	0.200	90.727	83.333	7.393
0.790	227	0.162	95.625	88.889	6.736
0.830	241	0.148	97.497	94.444	3.052
0.890	255	0.129	100.000	100.000	0.000

20% DOT GAIN SETTING, CYAN [count 30]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.110	17	0.776	9.349	5.556	3.794
0.140	31	0.724	15.818	11.111	4.706
0.170	45	0.676	21.854	16.667	5.187
0.220	59	0.603	31.033	22.222	8.811
0.260	73	0.550	37.652	27.778	9.874
0.300	87	0.501	43.688	33.333	10.355
0.350	101	0.447	50.492	38.889	11.604
0.400	115	0.398	56.557	44.444	12.112
0.460	129	0.347	62.970	50.000	12.970
0.530	143	0.295	69.414	55.556	13.858
0.580	157	0.263	73.420	61.111	12.309
0.640	171	0.229	77.657	66.667	10.991
0.710	185	0.195	81.915	72.222	9.693
0.790	199	0.162	86.010	77.778	8.232
0.870	213	0.135	89.416	83.333	6.083
0.990	227	0.102	93.482	88.889	4.593
1.140	241	0.072	97.213	94.444	2.768
1.300	255	0.050	100.000	100.000	0.000

20% DOT GAIN SETTING, BLACK [count 30]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.080	17	0.832	6.903	5.556	1.348
0.130	31	0.741	17.400	11.111	6.289
0.170	45	0.676	24.969	16.667	8.302
0.220	59	0.603	33.501	22.222	11.279
0.270	73	0.537	41.105	27.778	13.327
0.300	87	0.501	45.265	33.333	11.931
0.350	101	0.447	51.590	38.889	12.701
0.400	115	0.398	57.227	44.444	12.782
0.450	129	0.355	62.251	50.000	12.251
0.500	143	0.316	66.728	55.556	11.173
0.560	157	0.275	71.463	61.111	10.352
0.640	171	0.229	76.840	66.667	10.174
0.760	185	0.174	83.259	72.222	11.036
0.870	199	0.135	87.771	77.778	9.993
1.010	213	0.098	92.084	83.333	8.751
1.190	227	0.065	95.932	88.889	7.043
1.360	241	0.044	98.359	94.444	3.915
1.530	255	0.030	100.000	100.000	0.000

20% DOT GAIN SETTING, MAGENTA [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.100	17	0.794	9.437	5.556	3.881
0.130	31	0.741	15.966	11.111	4.854
0.170	45	0.676	23.998	16.667	7.331
0.210	59	0.617	31.323	22.222	9.101
0.250	73	0.562	38.004	27.778	10.226
0.280	87	0.525	42.626	33.333	9.293
0.340	101	0.457	50.965	38.889	12.076
0.380	115	0.417	55.917	44.444	11.473
0.430	129	0.372	61.500	50.000	11.500
0.490	143	0.324	67.404	55.556	11.848
0.530	157	0.295	70.910	61.111	9.799
0.590	171	0.257	75.599	66.667	8.932
0.660	185	0.219	80.311	72.222	8.089
0.740	199	0.182	84.843	77.778	7.065
0.820	213	0.151	88.613	83.333	5.280
0.930	227	0.117	92.783	88.889	3.894
1.080	241	0.083	97.009	94.444	2.564
1.230	255	0.059	100.000	100.000	0.000

20% DOT GAIN SETTING, YELLOW [count 30]

density	step	reflectance	dot area	relative drive	gain
0.040	3	0.912	0.000	0.000	0.000
0.100	17	0.794	15.026	5.556	9.471
0.130	31	0.741	21.796	11.111	10.685
0.160	45	0.692	28.113	16.667	11.447
0.210	59	0.617	37.720	22.222	15.498
0.230	73	0.589	41.263	27.778	13.485
0.280	87	0.525	49.440	33.333	16.106
0.300	101	0.501	52.455	38.889	13.567
0.350	115	0.447	59.415	44.444	14.970
0.400	129	0.398	65.617	50.000	15.617
0.440	143	0.363	70.090	55.556	14.534
0.480	157	0.331	74.169	61.111	13.058
0.530	171	0.295	78.767	66.667	12.100
0.590	185	0.257	83.629	72.222	11.407
0.650	199	0.224	87.864	77.778	10.086
0.710	213	0.195	91.553	83.333	8.219
0.760	227	0.174	94.260	88.889	5.371
0.840	241	0.145	97.993	94.444	3.548
0.890	255	0.129	100.000	100.000	0.000

20% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.066	3	0.859	0.000	0.000	0.000
0.110	17	0.776	10.232	5.556	4.676
0.140	31	0.724	16.637	11.111	5.526
0.176	45	0.667	23.762	16.667	7.095
0.218	59	0.605	31.360	22.222	9.138
0.262	73	0.547	38.571	27.778	10.793
0.300	87	0.501	44.236	33.333	10.903
0.356	101	0.441	51.732	38.889	12.843
0.408	115	0.391	57.878	44.444	13.434
0.462	129	0.345	63.527	50.000	13.527
0.524	143	0.299	69.204	55.556	13.648
0.572	157	0.268	73.075	61.111	11.963
0.626	171	0.237	76.947	66.667	10.280
0.698	185	0.200	81.416	72.222	9.193
0.786	199	0.164	85.961	77.778	8.183
0.870	213	0.135	89.519	83.333	6.186
0.990	227	0.102	93.545	88.889	4.657
1.142	241	0.072	97.281	94.444	2.837
1.300	255	0.050	100.000	100.000	0.000

20% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.052	3	0.887	0.000	0.000	0.000
0.080	17	0.832	6.464	5.556	0.908
0.130	31	0.741	17.019	11.111	5.908
0.170	45	0.676	24.631	16.667	7.964
0.212	59	0.614	31.903	22.222	9.681
0.262	73	0.547	39.692	27.778	11.914
0.300	87	0.501	45.039	33.333	11.706
0.344	101	0.453	50.675	38.889	11.786
0.396	115	0.402	56.638	44.444	12.194
0.450	129	0.355	62.120	50.000	12.120
0.502	143	0.315	66.792	55.556	11.237
0.578	157	0.264	72.689	61.111	11.578
0.640	171	0.229	76.791	66.667	10.125
0.750	185	0.178	82.773	72.222	10.551
0.848	199	0.142	86.965	77.778	9.187
0.986	213	0.103	91.473	83.333	8.139
1.168	227	0.068	95.598	88.889	6.709
1.340	241	0.046	98.190	94.444	3.746
1.520	255	0.030	100.000	100.000	0.000

20% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.100	17	0.794	9.400	5.556	3.845
0.136	31	0.731	17.151	11.111	6.040
0.174	45	0.670	24.665	16.667	7.998
0.208	59	0.619	30.852	22.222	8.630
0.254	73	0.557	38.489	27.778	10.711
0.286	87	0.518	43.344	33.333	10.010
0.340	101	0.457	50.767	38.889	11.878
0.386	115	0.411	56.402	44.444	11.957
0.438	129	0.365	62.093	50.000	12.093
0.494	143	0.321	67.506	55.556	11.950
0.538	157	0.290	71.295	61.111	10.184
0.600	171	0.251	76.023	66.667	9.356
0.676	185	0.211	80.970	72.222	8.747
0.754	199	0.176	85.222	77.778	7.444
0.838	213	0.145	89.023	83.333	5.689
0.944	227	0.114	92.880	88.889	3.991
1.098	241	0.080	97.046	94.444	2.602
1.254	255	0.056	100.000	100.000	0.000

20% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.048	3	0.895	0.000	0.000	0.000
0.100	17	0.794	13.171	5.556	7.615
0.132	31	0.738	20.526	11.111	9.415
0.182	45	0.658	30.986	16.667	14.320
0.208	59	0.619	35.968	22.222	13.746
0.234	73	0.583	40.661	27.778	12.883
0.280	87	0.525	48.304	33.333	14.971
0.304	101	0.497	51.982	38.889	13.093
0.344	115	0.453	57.678	44.444	13.234
0.394	129	0.404	64.098	50.000	14.098
0.430	143	0.372	68.284	55.556	12.729
0.474	157	0.336	72.951	61.111	11.839
0.530	171	0.295	78.245	66.667	11.579
0.590	185	0.257	83.209	72.222	10.987
0.648	199	0.225	87.398	77.778	9.620
0.706	213	0.197	91.063	83.333	7.730
0.788	227	0.163	95.477	88.889	6.588
0.834	241	0.147	97.612	94.444	3.167
0.892	255	0.128	100.000	100.000	0.000

Appendix Submenu: 25% Tables, Count Numbers 59,60,

25% DOT GAIN SETTING, CYAN [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	13.692	5.556	8.136
0.170	31	0.676	23.741	11.111	12.630
0.210	45	0.617	30.989	16.667	14.322
0.260	59	0.550	39.158	22.222	16.935
0.290	73	0.513	43.626	27.778	15.848
0.350	87	0.447	51.688	33.333	18.355
0.390	101	0.407	56.476	38.889	17.587
0.450	115	0.355	62.880	44.444	18.436
0.520	129	0.302	69.315	50.000	19.315
0.560	143	0.275	72.552	55.556	16.997
0.640	157	0.229	78.197	61.111	17.086
0.690	171	0.204	81.232	66.667	14.565
0.760	185	0.174	84.935	72.222	12.713
0.840	199	0.145	88.497	77.778	10.719
0.950	213	0.112	92.437	83.333	9.103
1.010	227	0.098	94.200	88.889	5.312
1.170	241	0.068	97.869	94.444	3.425
1.300	255	0.050	100.000	100.000	0.000

3, 25, 30

25% DOT GAIN SETTING, BLACK [count 59]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.110	17	0.776	13.325	5.556	7.769
0.150	31	0.708	21.239	11.111	10.128
0.200	45	0.631	30.159	16.667	13.492
0.250	59	0.562	38.109	22.222	15.887
0.290	73	0.513	43.842	27.778	16.065
0.350	87	0.447	51.510	33.333	18.177
0.400	101	0.398	57.139	38.889	18.250
0.460	115	0.347	63.091	44.444	18.646
0.510	129	0.309	67.460	50.000	17.460
0.560	143	0.275	71.353	55.556	15.798
0.620	157	0.240	75.471	61.111	14.360
0.720	171	0.191	81.188	66.667	14.521
0.810	185	0.155	85.320	72.222	13.098
0.940	199	0.115	89.962	77.778	12.185
1.110	213	0.078	94.271	83.333	10.938
1.220	227	0.060	96.284	88.889	7.395
1.390	241	0.041	98.545	94.444	4.101
1.550	255	0.028	100.000	100.000	0.000

25% DOT GAIN SETTING, MAGENTA [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.110	17	0.776	11.607	5.556	6.052
0.160	31	0.692	21.952	11.111	10.841
0.190	45	0.646	27.611	16.667	10.944
0.240	59	0.575	36.216	22.222	13.993
0.290	73	0.513	43.885	27.778	16.107
0.340	87	0.457	50.719	33.333	17.386
0.390	101	0.407	56.811	38.889	17.922
0.430	115	0.372	61.204	44.444	16.759
0.490	129	0.324	67.079	50.000	17.079
0.530	143	0.295	70.568	55.556	15.013
0.600	157	0.251	75.952	61.111	14.841
0.670	171	0.214	80.534	66.667	13.868
0.730	185	0.186	83.915	72.222	11.693
0.790	199	0.162	86.860	77.778	9.082
0.880	213	0.132	90.580	83.333	7.246
0.980	227	0.105	93.902	88.889	5.013
1.110	241	0.078	97.222	94.444	2.777
1.260	255	0.055	100.000	100.000	0.000

25% DOT GAIN SETTING, YELLOW [count 59]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.110	17	0.776	15.026	5.556	9.471
0.150	31	0.708	23.950	11.111	12.839
0.190	45	0.646	32.089	16.667	15.422
0.230	59	0.589	39.512	22.222	17.290
0.270	73	0.537	46.281	27.778	18.504
0.310	87	0.490	52.455	33.333	19.122
0.340	101	0.457	56.727	38.889	17.838
0.390	115	0.407	63.221	44.444	18.777
0.420	129	0.380	66.774	50.000	16.774
0.480	143	0.331	73.184	55.556	17.628
0.530	157	0.295	77.889	61.111	16.778
0.590	171	0.257	82.865	66.667	16.198
0.650	185	0.224	87.198	72.222	14.976
0.710	199	0.195	90.973	77.778	13.195
0.760	213	0.174	93.743	83.333	10.410
0.820	227	0.151	96.673	88.889	7.784
0.860	241	0.138	98.413	94.444	3.969
0.900	255	0.126	100.000	100.000	0.000

25% DOT GAIN SETTING, CYAN [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	13.636	5.556	8.080
0.170	31	0.676	23.645	11.111	12.534
0.210	45	0.617	30.863	16.667	14.196
0.260	59	0.550	38.999	22.222	16.776
0.290	73	0.513	43.449	27.778	15.671
0.360	87	0.437	52.712	33.333	19.379
0.400	101	0.398	57.372	38.889	18.483
0.460	115	0.347	63.605	44.444	19.161
0.520	129	0.302	69.034	50.000	19.034
0.580	143	0.263	73.762	55.556	18.206
0.620	157	0.240	76.570	61.111	15.459
0.690	171	0.204	80.902	66.667	14.236
0.750	185	0.178	84.099	72.222	11.877
0.840	199	0.145	88.137	77.778	10.360
0.950	213	0.112	92.061	83.333	8.728
1.050	227	0.089	94.861	88.889	5.973
1.200	241	0.063	98.020	94.444	3.575
1.330	255	0.047	100.000	100.000	0.000

25% DOT GAIN SETTING, BLACK [count 60]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.080	17	0.832	6.898	5.556	1.342
0.110	31	0.776	13.335	11.111	2.224
0.150	45	0.708	21.255	16.667	4.588
0.210	59	0.617	31.847	22.222	9.625
0.250	73	0.562	38.138	27.778	10.361
0.290	87	0.513	43.876	33.333	10.542
0.350	101	0.447	51.549	38.889	12.660
0.390	115	0.407	56.107	44.444	11.662
0.460	129	0.347	63.139	50.000	13.139
0.500	143	0.316	66.676	55.556	11.121
0.650	157	0.224	77.385	61.111	16.274
0.730	171	0.186	81.752	66.667	15.086
0.810	185	0.155	85.385	72.222	13.163
0.920	199	0.120	89.403	77.778	11.626
1.090	213	0.081	93.919	83.333	10.586
1.270	227	0.054	97.117	88.889	8.228
1.380	241	0.042	98.510	94.444	4.066
1.540	255	0.029	100.000	100.000	0.000

25% DOT GAIN SETTING, MAGENTA [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	13.773	5.556	8.217
0.160	31	0.692	21.952	11.111	10.841
0.200	45	0.631	29.412	16.667	12.746
0.240	59	0.575	36.216	22.222	13.993
0.300	73	0.501	45.315	27.778	17.537
0.340	87	0.457	50.719	33.333	17.386
0.400	101	0.398	57.947	38.889	19.059
0.430	115	0.372	61.204	44.444	16.759
0.490	129	0.324	67.079	50.000	17.079
0.530	143	0.295	70.568	55.556	15.013
0.590	157	0.257	75.235	61.111	14.124
0.680	171	0.209	81.131	66.667	14.464
0.720	185	0.191	83.384	72.222	11.161
0.810	199	0.155	87.754	77.778	9.976
0.890	213	0.129	90.947	83.333	7.614
1.000	227	0.100	94.480	88.889	5.591
1.120	241	0.076	97.438	94.444	2.994
1.260	255	0.055	100.000	100.000	0.000

25% DOT GAIN SETTING, YELLOW [count 60]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.110	17	0.776	15.026	5.556	9.471
0.160	31	0.692	26.056	11.111	14.945
0.200	45	0.631	34.009	16.667	17.343
0.230	59	0.589	39.512	22.222	17.290
0.270	73	0.537	46.281	27.778	18.504
0.310	87	0.490	52.455	33.333	19.122
0.340	101	0.457	56.727	38.889	17.838
0.390	115	0.407	63.221	44.444	18.777
0.430	129	0.372	67.905	50.000	17.905
0.480	143	0.331	73.184	55.556	17.628
0.540	157	0.288	78.767	61.111	17.656
0.580	171	0.263	82.082	66.667	15.416
0.650	185	0.224	87.198	72.222	14.976
0.690	199	0.204	89.772	77.778	11.994
0.750	213	0.178	93.214	83.333	9.881
0.810	227	0.155	96.212	88.889	7.323
0.860	241	0.138	98.413	94.444	3.969
0.900	255	0.126	100.000	100.000	0.000

25% DOT GAIN SETTING, CYAN [count 3]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.120	17	0.759	11.572	5.556	6.017
0.170	31	0.676	21.886	11.111	10.775
0.210	45	0.617	29.323	16.667	12.657
0.240	59	0.575	34.469	22.222	12.246
0.290	73	0.513	42.292	27.778	14.515
0.350	87	0.447	50.566	33.333	17.233
0.390	101	0.407	55.480	38.889	16.591
0.460	115	0.347	63.062	44.444	18.617
0.520	129	0.302	68.656	50.000	18.656
0.560	143	0.275	71.978	55.556	16.422
0.630	157	0.234	77.104	61.111	15.993
0.700	171	0.200	81.467	66.667	14.800
0.750	185	0.178	84.179	72.222	11.957
0.840	199	0.145	88.341	77.778	10.563
0.930	213	0.117	91.723	83.333	8.390
1.030	227	0.093	94.744	88.889	5.855
1.160	241	0.069	97.762	94.444	3.318
1.290	255	0.051	100.000	100.000	0.000

25% DOT GAIN SETTING, BLACK [count 3]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.100	17	0.794	11.256	5.556	5.701
0.150	31	0.708	21.289	11.111	10.177
0.200	45	0.631	30.230	16.667	13.563
0.240	59	0.575	36.677	22.222	14.455
0.280	73	0.525	42.558	27.778	14.780
0.340	87	0.457	50.422	33.333	17.089
0.380	101	0.417	55.093	38.889	16.204
0.440	115	0.363	61.340	44.444	16.896
0.490	129	0.324	65.926	50.000	15.926
0.560	143	0.275	71.520	55.556	15.965
0.610	157	0.245	74.999	61.111	13.888
0.700	171	0.200	80.335	66.667	13.668
0.780	185	0.166	84.233	72.222	12.011
0.930	199	0.117	89.862	77.778	12.085
1.080	213	0.083	93.847	83.333	10.514
1.200	227	0.063	96.180	88.889	7.291
1.370	241	0.043	98.553	94.444	4.109
1.520	255	0.030	100.000	100.000	0.000

25% DOT GAIN SETTING, MAGENTA [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	13.816	5.556	8.261
0.160	31	0.692	22.022	11.111	10.911
0.200	45	0.631	29.506	16.667	12.839
0.240	59	0.575	36.331	22.222	14.109
0.290	73	0.513	44.024	27.778	16.247
0.330	87	0.468	49.572	33.333	16.239
0.380	101	0.417	55.825	38.889	16.936
0.420	115	0.380	60.335	44.444	15.890
0.470	129	0.339	65.418	50.000	15.418
0.520	143	0.302	69.948	55.556	14.392
0.580	157	0.263	74.738	61.111	13.627
0.660	171	0.219	80.178	66.667	13.512
0.720	185	0.191	83.649	72.222	11.427
0.790	199	0.162	87.136	77.778	9.358
0.880	213	0.132	90.868	83.333	7.535
0.970	227	0.107	93.901	88.889	5.012
1.090	241	0.081	97.082	94.444	2.637
1.240	255	0.058	100.000	100.000	0.000

25% DOT GAIN SETTING, YELLOW [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	15.144	5.556	9.588
0.170	31	0.676	26.259	11.111	15.148
0.200	45	0.631	32.340	16.667	15.673
0.230	59	0.589	38.014	22.222	15.792
0.270	73	0.537	44.996	27.778	17.218
0.310	87	0.490	51.363	33.333	18.030
0.340	101	0.457	55.768	38.889	16.879
0.390	115	0.407	62.466	44.444	18.021
0.420	129	0.380	66.130	50.000	16.130
0.480	143	0.331	72.740	55.556	17.185
0.520	157	0.302	76.666	61.111	15.555
0.570	171	0.269	81.091	66.667	14.425
0.640	185	0.229	86.490	72.222	14.268
0.680	199	0.209	89.206	77.778	11.428
0.750	213	0.178	93.397	83.333	10.064
0.800	227	0.158	96.003	88.889	7.114
0.840	241	0.145	97.882	94.444	3.437
0.890	255	0.129	100.000	100.000	0.000

25% DOT GAIN SETTING, CYAN [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	13.673	5.556	8.117
0.170	31	0.676	23.709	11.111	12.597
0.200	45	0.631	29.198	16.667	12.532
0.250	59	0.562	37.546	22.222	15.324
0.280	73	0.525	42.112	27.778	14.334
0.350	87	0.447	51.616	33.333	18.283
0.400	101	0.398	57.526	38.889	18.637
0.450	115	0.355	62.793	44.444	18.349
0.510	129	0.309	68.363	50.000	18.363
0.550	143	0.282	71.671	55.556	16.115
0.630	157	0.234	77.439	61.111	16.328
0.680	171	0.209	80.541	66.667	13.874
0.720	185	0.191	82.777	72.222	10.555
0.810	199	0.155	87.116	77.778	9.338
0.930	213	0.117	91.665	83.333	8.332
1.010	227	0.098	94.070	88.889	5.181
1.170	241	0.068	97.733	94.444	3.289
1.310	255	0.049	100.000	100.000	0.000

25% DOT GAIN SETTING, BLACK [count 25]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.100	17	0.794	11.256	5.556	5.701
0.150	31	0.708	21.289	11.111	10.177
0.200	45	0.631	30.230	16.667	13.563
0.250	59	0.562	38.199	22.222	15.976
0.290	73	0.513	43.945	27.778	16.167
0.340	87	0.457	50.422	33.333	17.089
0.380	101	0.417	55.093	38.889	16.204
0.440	115	0.363	61.340	44.444	16.896
0.490	129	0.324	65.926	50.000	15.926
0.560	143	0.275	71.520	55.556	15.965
0.610	157	0.245	74.999	61.111	13.888
0.700	171	0.200	80.335	66.667	13.668
0.780	185	0.166	84.233	72.222	12.011
0.890	199	0.129	88.546	77.778	10.768
1.070	213	0.085	93.622	83.333	10.289
1.180	227	0.066	95.834	88.889	6.945
1.360	241	0.044	98.438	94.444	3.993
1.520	255	0.030	100.000	100.000	0.000

25% DOT GAIN SETTING, MAGENTA [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.110	17	0.776	11.663	5.556	6.108
0.160	31	0.692	22.059	11.111	10.947
0.190	45	0.646	27.745	16.667	11.078
0.240	59	0.575	36.391	22.222	14.169
0.290	73	0.513	44.097	27.778	16.319
0.340	87	0.457	50.965	33.333	17.632
0.380	101	0.417	55.917	38.889	17.029
0.420	115	0.380	60.434	44.444	15.990
0.470	129	0.339	65.526	50.000	15.526
0.510	143	0.309	69.197	55.556	13.641
0.580	157	0.263	74.862	61.111	13.751
0.670	171	0.214	80.924	66.667	14.257
0.700	185	0.200	82.681	72.222	10.459
0.780	199	0.166	86.815	77.778	9.037
0.870	213	0.135	90.640	83.333	7.307
0.960	227	0.110	93.749	88.889	4.860
1.080	241	0.083	97.009	94.444	2.564
1.230	255	0.059	100.000	100.000	0.000

25% DOT GAIN SETTING, YELLOW [count 25]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.110	17	0.776	15.205	5.556	9.649
0.160	31	0.692	26.366	11.111	15.255
0.190	45	0.646	32.471	16.667	15.804
0.220	59	0.603	38.169	22.222	15.947
0.260	73	0.550	45.179	27.778	17.401
0.300	87	0.501	51.572	33.333	18.238
0.330	101	0.468	55.994	38.889	17.105
0.370	115	0.427	61.436	44.444	16.991
0.410	129	0.389	66.398	50.000	16.398
0.470	143	0.339	73.035	55.556	17.480
0.520	157	0.302	77.907	61.111	16.796
0.570	171	0.269	82.249	66.667	15.583
0.640	185	0.229	87.547	72.222	15.325
0.680	199	0.209	90.212	77.778	12.434
0.730	213	0.186	93.216	83.333	9.882
0.790	227	0.162	96.393	88.889	7.504
0.830	241	0.148	98.279	94.444	3.835
0.870	255	0.135	100.000	100.000	0.000

25% DOT GAIN SETTING, CYAN [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	13.711	5.556	8.155
0.170	31	0.676	23.775	11.111	12.664
0.210	45	0.617	31.033	16.667	14.366
0.250	59	0.562	37.652	22.222	15.429
0.290	73	0.513	43.688	27.778	15.910
0.350	87	0.447	51.762	33.333	18.428
0.390	101	0.407	56.557	38.889	17.668
0.430	115	0.372	60.930	44.444	16.485
0.510	129	0.309	68.556	50.000	18.556
0.550	143	0.282	71.873	55.556	16.317
0.610	157	0.245	76.310	61.111	15.199
0.690	171	0.204	81.348	66.667	14.681
0.730	185	0.186	83.540	72.222	11.317
0.820	199	0.151	87.792	77.778	10.014
0.910	213	0.123	91.248	83.333	7.914
1.010	227	0.098	94.335	88.889	5.446
1.180	241	0.066	98.196	94.444	3.752
1.290	255	0.051	100.000	100.000	0.000

25% DOT GAIN SETTING, BLACK [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.110	17	0.776	11.315	5.556	5.760
0.150	31	0.708	19.475	11.111	8.363
0.200	45	0.631	28.672	16.667	12.005
0.250	59	0.562	36.869	22.222	14.647
0.290	73	0.513	42.780	27.778	15.002
0.330	87	0.468	48.171	33.333	14.838
0.380	101	0.417	54.247	38.889	15.359
0.450	115	0.355	61.661	44.444	17.216
0.490	129	0.324	65.390	50.000	15.390
0.550	143	0.282	70.379	55.556	14.823
0.610	157	0.245	74.723	61.111	13.612
0.700	171	0.200	80.212	66.667	13.545
0.780	185	0.166	84.222	72.222	12.000
0.880	199	0.132	88.300	77.778	10.522
1.060	213	0.087	93.643	83.333	10.310
1.150	227	0.071	95.591	88.889	6.702
1.320	241	0.048	98.330	94.444	3.886
1.470	255	0.034	100.000	100.000	0.000

25% DOT GAIN SETTING, MAGENTA [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	13.794	5.556	8.239
0.160	31	0.692	21.987	11.111	10.876
0.190	45	0.646	27.655	16.667	10.988
0.240	59	0.575	36.273	22.222	14.050
0.290	73	0.513	43.954	27.778	16.176
0.330	87	0.468	49.492	33.333	16.159
0.380	101	0.417	55.736	38.889	16.847
0.420	115	0.380	60.238	44.444	15.793
0.480	129	0.331	66.259	50.000	16.259
0.510	143	0.309	68.972	55.556	13.416
0.590	157	0.257	75.353	61.111	14.242
0.670	171	0.214	80.661	66.667	13.994
0.710	185	0.195	82.970	72.222	10.748
0.790	199	0.162	86.996	77.778	9.218
0.870	213	0.135	90.345	83.333	7.012
0.970	227	0.107	93.750	88.889	4.861
1.080	241	0.083	96.693	94.444	2.249
1.250	255	0.056	100.000	100.000	0.000

25% DOT GAIN SETTING, YELLOW [count 30]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.110	17	0.776	15.144	5.556	9.588
0.160	31	0.692	26.259	11.111	15.148
0.200	45	0.631	34.275	16.667	17.608
0.230	59	0.589	39.821	22.222	17.598
0.270	73	0.537	46.643	27.778	18.865
0.300	87	0.501	51.363	33.333	18.030
0.340	101	0.457	57.170	38.889	18.281
0.380	115	0.417	62.466	44.444	18.021
0.420	129	0.380	67.296	50.000	17.296
0.480	143	0.331	73.756	55.556	18.200
0.530	157	0.295	78.498	61.111	17.386
0.560	171	0.275	81.091	66.667	14.425
0.640	185	0.229	87.193	72.222	14.971
0.690	199	0.204	90.473	77.778	12.696
0.740	213	0.182	93.397	83.333	10.064
0.800	227	0.158	96.489	88.889	7.600
0.840	241	0.145	98.325	94.444	3.881
0.880	255	0.132	100.000	100.000	0.000

25% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.062	3	0.867	0.000	0.000	0.000
0.120	17	0.759	13.261	5.556	7.706
0.170	31	0.676	23.355	11.111	12.244
0.208	45	0.619	30.285	16.667	13.618
0.252	59	0.560	37.588	22.222	15.365
0.288	73	0.515	43.036	27.778	15.258
0.352	87	0.445	51.674	33.333	18.340
0.394	101	0.404	56.688	38.889	17.800
0.450	115	0.355	62.663	44.444	18.219
0.516	129	0.305	68.784	50.000	18.784
0.560	143	0.275	72.377	55.556	16.821
0.626	157	0.237	77.128	61.111	16.017
0.690	171	0.204	81.095	66.667	14.428
0.742	185	0.181	83.914	72.222	11.691
0.830	199	0.148	87.979	77.778	10.201
0.934	213	0.116	91.832	83.333	8.499
1.022	227	0.095	94.445	88.889	5.556
1.176	241	0.067	97.917	94.444	3.473
1.304	255	0.050	100.000	100.000	0.000

25% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.052	3	0.887	0.000	0.000	0.000
0.100	17	0.794	10.832	5.556	5.277
0.142	31	0.721	19.377	11.111	8.265
0.190	45	0.646	28.181	16.667	11.515
0.240	59	0.575	36.375	22.222	14.153
0.280	73	0.525	42.283	27.778	14.505
0.330	87	0.468	48.943	33.333	15.610
0.378	101	0.419	54.654	38.889	15.765
0.436	115	0.366	60.764	44.444	16.319
0.488	129	0.325	65.589	50.000	15.589
0.546	143	0.284	70.331	55.556	14.776
0.620	157	0.240	75.532	61.111	14.420
0.710	171	0.195	80.771	66.667	14.104
0.792	185	0.161	84.686	72.222	12.464
0.912	199	0.122	89.234	77.778	11.456
1.082	213	0.083	93.863	83.333	10.529
1.204	227	0.063	96.229	88.889	7.340
1.364	241	0.043	98.477	94.444	4.033
1.520	255	0.030	100.000	100.000	0.000

25% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.116	17	0.766	12.937	5.556	7.381
0.160	31	0.692	21.994	11.111	10.883
0.194	45	0.640	28.390	16.667	11.723
0.240	59	0.575	36.284	22.222	14.062
0.292	73	0.511	44.257	27.778	16.479
0.336	87	0.461	50.296	33.333	16.963
0.386	101	0.411	56.456	38.889	17.567
0.424	115	0.377	60.685	44.444	16.240
0.480	129	0.331	66.280	50.000	16.280
0.520	143	0.302	69.858	55.556	14.302
0.588	157	0.258	75.231	61.111	14.120
0.670	171	0.214	80.687	66.667	14.020
0.716	185	0.192	83.325	72.222	11.102
0.792	199	0.161	87.115	77.778	9.338
0.878	213	0.132	90.676	83.333	7.343
0.976	227	0.106	93.961	88.889	5.072
1.096	241	0.080	97.093	94.444	2.649
1.248	255	0.056	100.000	100.000	0.000

25% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.052	3	0.887	0.000	0.000	0.000
0.112	17	0.773	15.108	5.556	9.552
0.160	31	0.692	25.777	11.111	14.666
0.196	45	0.637	33.041	16.667	16.374
0.228	59	0.592	39.010	22.222	16.788
0.268	73	0.540	45.879	27.778	18.102
0.306	87	0.494	51.845	33.333	18.511
0.338	101	0.459	56.478	38.889	17.590
0.384	115	0.413	62.569	44.444	18.125
0.420	129	0.380	66.905	50.000	16.905
0.478	143	0.333	73.178	55.556	17.622
0.528	157	0.296	77.952	61.111	16.841
0.574	171	0.267	81.885	66.667	15.218
0.644	185	0.227	87.124	72.222	14.902
0.690	199	0.204	90.135	77.778	12.357
0.746	213	0.179	93.394	83.333	10.061
0.804	227	0.157	96.355	88.889	7.466
0.846	241	0.143	98.266	94.444	3.821
0.888	255	0.129	100.000	100.000	0.000

Appendix Submenu: 30% Tables, Count Numbers 59,60, 3, 25, 30

30% DOT GAIN SETTING, BLACK [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	13.367	5.556	7.812
0.170	31	0.676	23.179	11.111	12.068
0.230	45	0.589	33.555	16.667	16.889
0.280	59	0.525	41.172	22.222	18.949
0.330	73	0.468	47.960	27.778	20.182
0.380	87	0.417	54.010	33.333	20.676
0.440	101	0.363	60.408	38.889	21.519
0.490	115	0.324	65.104	44.444	20.659
0.560	129	0.275	70.833	50.000	20.833
0.580	143	0.263	72.308	55.556	16.752
0.670	157	0.214	78.163	61.111	17.052
0.740	171	0.182	81.948	66.667	15.282
0.840	185	0.145	86.400	72.222	14.178
0.970	199	0.107	90.847	77.778	13.070
1.120	213	0.076	94.569	83.333	11.236
1.200	227	0.063	96.087	88.889	7.198
1.370	241	0.043	98.518	94.444	4.074
1.520	255	0.030	100.000	100.000	0.000

30% DOT GAIN SETTING, CYAN [count 59]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.140	17	0.724	15.773	5.556	10.218
0.180	31	0.661	23.709	11.111	12.597
0.230	45	0.589	32.653	16.667	15.986
0.280	59	0.525	40.625	22.222	18.403
0.330	73	0.468	47.730	27.778	19.952
0.390	87	0.407	55.244	33.333	21.910
0.440	101	0.363	60.759	38.889	21.870
0.510	115	0.309	67.487	44.444	23.043
0.560	129	0.275	71.671	50.000	21.671
0.620	143	0.240	76.095	55.556	20.540
0.690	157	0.204	80.541	61.111	19.430
0.720	171	0.191	82.237	66.667	15.571
0.800	185	0.158	86.228	72.222	14.006
0.880	199	0.132	89.547	77.778	11.770
0.980	213	0.105	92.923	83.333	9.589
1.070	227	0.085	95.363	88.889	6.474
1.200	241	0.063	98.104	94.444	3.659
1.320	255	0.048	100.000	100.000	0.000

30% DOT GAIN SETTING, MAGENTA [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	13.863	5.556	8.307
0.180	31	0.661	25.937	11.111	14.826
0.220	45	0.603	33.107	16.667	16.441
0.280	59	0.525	42.698	22.222	20.476
0.320	73	0.479	48.394	27.778	20.616
0.380	87	0.417	56.012	33.333	22.679
0.420	101	0.380	60.537	38.889	21.648
0.490	115	0.324	67.518	44.444	23.073
0.510	129	0.309	69.314	50.000	19.314
0.580	143	0.263	74.988	55.556	19.433
0.640	157	0.229	79.175	61.111	18.064
0.690	171	0.204	82.248	66.667	15.581
0.760	185	0.174	85.997	72.222	13.775
0.820	199	0.151	88.763	77.778	10.985
0.890	213	0.129	91.542	83.333	8.209
1.000	227	0.100	95.098	88.889	6.209
1.120	241	0.076	98.076	94.444	3.631
1.220	255	0.060	100.000	100.000	0.000

30% DOT GAIN SETTING, YELLOW [count 59]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.130	17	0.741	19.744	5.556	14.188
0.180	31	0.661	30.359	11.111	19.248
0.220	45	0.603	38.014	16.667	21.348
0.250	59	0.562	43.310	22.222	21.088
0.300	73	0.501	51.363	27.778	23.585
0.340	87	0.457	57.170	33.333	23.837
0.370	101	0.427	61.187	38.889	22.298
0.410	115	0.389	66.130	44.444	21.685
0.470	129	0.339	72.740	50.000	22.740
0.510	143	0.309	76.666	55.556	21.110
0.560	157	0.275	81.091	61.111	19.980
0.600	171	0.251	84.282	66.667	17.616
0.670	185	0.214	89.206	72.222	16.984
0.700	199	0.200	91.085	77.778	13.308
0.760	213	0.174	94.476	83.333	11.142
0.820	227	0.151	97.428	88.889	8.539
0.840	241	0.145	98.325	94.444	3.881
0.880	255	0.132	100.000	100.000	0.000

30% DOT GAIN SETTING, CYAN [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.140	17	0.724	17.802	5.556	12.246
0.190	31	0.646	27.373	11.111	16.262
0.230	45	0.589	34.275	16.667	17.609
0.280	59	0.525	42.055	22.222	19.833
0.330	73	0.468	48.989	27.778	21.211
0.400	87	0.398	57.448	33.333	24.115
0.440	101	0.363	61.704	38.889	22.815
0.510	115	0.309	68.270	44.444	23.826
0.560	129	0.275	72.353	50.000	22.353
0.620	143	0.240	76.671	55.556	21.116
0.680	157	0.209	80.432	61.111	19.321
0.720	171	0.191	82.665	66.667	15.999
0.790	185	0.162	86.111	72.222	13.889
0.880	199	0.132	89.799	77.778	12.021
0.980	213	0.105	93.093	83.333	9.760
1.050	227	0.089	94.987	88.889	6.098
1.180	241	0.066	97.788	94.444	3.344
1.320	255	0.048	100.000	100.000	0.000

30% DOT GAIN SETTING, BLACK [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.130	17	0.741	15.475	5.556	9.919
0.170	31	0.676	23.260	11.111	12.148
0.230	45	0.589	33.672	16.667	17.005
0.280	59	0.525	41.315	22.222	19.093
0.340	73	0.457	49.397	27.778	21.620
0.370	87	0.427	53.039	33.333	19.705
0.430	101	0.372	59.608	38.889	20.719
0.490	115	0.324	65.330	44.444	20.886
0.550	129	0.282	70.314	50.000	20.314
0.590	143	0.257	73.274	55.556	17.718
0.670	157	0.214	78.435	61.111	17.324
0.750	171	0.178	82.728	66.667	16.061
0.840	185	0.145	86.700	72.222	14.478
0.930	199	0.117	89.929	77.778	12.152
1.070	213	0.085	93.794	83.333	10.460
1.170	227	0.068	95.883	88.889	6.994
1.340	241	0.046	98.497	94.444	4.052
1.480	255	0.033	100.000	100.000	0.000

30% DOT GAIN SETTING, MAGENTA [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.130	17	0.741	15.889	5.556	10.333
0.180	31	0.661	25.768	11.111	14.657
0.230	45	0.589	34.573	16.667	17.906
0.280	59	0.525	42.421	22.222	20.198
0.320	73	0.479	48.080	27.778	20.302
0.380	87	0.417	55.648	33.333	22.315
0.420	101	0.380	60.143	38.889	21.254
0.480	115	0.331	66.155	44.444	21.711
0.510	129	0.309	68.864	50.000	18.864
0.580	143	0.263	74.501	55.556	18.946
0.660	157	0.219	79.924	61.111	18.813
0.710	171	0.195	82.840	66.667	16.173
0.770	185	0.170	85.923	72.222	13.701
0.840	199	0.145	89.021	77.778	11.243
0.920	213	0.120	92.001	83.333	8.668
1.020	227	0.095	95.031	88.889	6.142
1.140	241	0.072	97.857	94.444	3.412
1.260	255	0.055	100.000	100.000	0.000

30% DOT GAIN SETTING, YELLOW [count 60]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.130	17	0.741	19.744	5.556	14.188
0.180	31	0.661	30.359	11.111	19.248
0.220	45	0.603	38.014	16.667	21.348
0.250	59	0.562	43.310	22.222	21.088
0.290	73	0.513	49.826	27.778	22.048
0.340	87	0.457	57.170	33.333	23.837
0.370	101	0.427	61.187	38.889	22.298
0.420	115	0.380	67.296	44.444	22.851
0.480	129	0.331	73.756	50.000	23.756
0.520	143	0.302	77.592	55.556	22.037
0.560	157	0.275	81.091	61.111	19.980
0.630	171	0.234	86.490	66.667	19.823
0.670	185	0.214	89.206	72.222	16.984
0.700	199	0.200	91.085	77.778	13.308
0.750	213	0.178	93.942	83.333	10.609
0.810	227	0.155	96.964	88.889	8.075
0.840	241	0.145	98.325	94.444	3.881
0.880	255	0.132	100.000	100.000	0.000

30% DOT GAIN SETTING, CYAN [count 3]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.130	17	0.741	13.636	5.556	8.080
0.190	31	0.646	25.512	11.111	14.401
0.230	45	0.589	32.566	16.667	15.899
0.290	59	0.513	42.000	22.222	19.777
0.340	73	0.457	48.924	27.778	21.146
0.400	87	0.398	56.247	33.333	22.914
0.450	101	0.355	61.622	38.889	22.733
0.510	115	0.309	67.307	44.444	22.862
0.560	129	0.275	71.479	50.000	21.479
0.620	143	0.240	75.892	55.556	20.336
0.690	157	0.204	80.325	61.111	19.214
0.730	171	0.186	82.556	66.667	15.889
0.800	185	0.158	85.997	72.222	13.775
0.880	199	0.132	89.308	77.778	11.530
0.970	213	0.107	92.371	83.333	9.038
1.080	227	0.083	95.348	88.889	6.459
1.190	241	0.065	97.659	94.444	3.214
1.340	255	0.046	100.000	100.000	0.000

30% DOT GAIN SETTING, BLACK [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	13.356	5.556	7.801
0.180	31	0.661	24.989	11.111	13.878
0.230	45	0.589	33.528	16.667	16.861
0.280	59	0.525	41.138	22.222	18.916
0.340	73	0.457	49.186	27.778	21.408
0.380	87	0.417	53.966	33.333	20.632
0.450	101	0.355	61.340	38.889	22.452
0.490	115	0.324	65.051	44.444	20.606
0.570	129	0.269	71.520	50.000	21.520
0.600	143	0.251	73.655	55.556	18.100
0.690	157	0.204	79.243	61.111	18.132
0.770	171	0.170	83.325	66.667	16.658
0.870	185	0.135	87.476	72.222	15.254
0.990	199	0.102	91.346	77.778	13.568
1.130	213	0.074	94.697	83.333	11.364
1.230	227	0.059	96.509	88.889	7.620
1.380	241	0.042	98.553	94.444	4.109
1.530	255	0.030	100.000	100.000	0.000

30% DOT GAIN SETTING, MAGENTA [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.130	17	0.741	16.020	5.556	10.465
0.180	31	0.661	25.982	11.111	14.870
0.220	45	0.603	33.165	16.667	16.498
0.270	59	0.537	41.262	22.222	19.039
0.320	73	0.479	48.478	27.778	20.700
0.370	87	0.427	54.909	33.333	21.576
0.420	101	0.380	60.642	38.889	21.753
0.470	115	0.339	65.750	44.444	21.306
0.500	129	0.316	68.545	50.000	18.545
0.570	143	0.269	74.361	55.556	18.806
0.620	157	0.240	77.978	61.111	16.867
0.680	171	0.209	81.803	66.667	15.136
0.740	185	0.182	85.134	72.222	12.912
0.830	199	0.148	89.343	77.778	11.565
0.880	213	0.132	91.330	83.333	7.997
1.000	227	0.100	95.263	88.889	6.374
1.110	241	0.078	98.027	94.444	3.583
1.210	255	0.062	100.000	100.000	0.000

30% DOT GAIN SETTING, YELLOW [count 3]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.120	17	0.759	17.541	5.556	11.986
0.170	31	0.676	28.448	11.111	17.337
0.210	45	0.617	36.313	16.667	19.646
0.240	59	0.575	41.754	22.222	19.532
0.290	73	0.513	50.028	27.778	22.250
0.330	87	0.468	55.994	33.333	22.661
0.370	101	0.427	61.436	38.889	22.547
0.400	115	0.398	65.200	44.444	20.756
0.460	129	0.347	71.992	50.000	21.992
0.510	143	0.309	76.977	55.556	21.422
0.550	157	0.282	80.572	61.111	19.461
0.600	171	0.251	84.625	66.667	17.958
0.670	185	0.214	89.568	72.222	17.346
0.700	199	0.200	91.455	77.778	13.677
0.760	213	0.174	94.859	83.333	11.526
0.800	227	0.158	96.881	88.889	7.992
0.840	241	0.145	98.724	94.444	4.280
0.870	255	0.135	100.000	100.000	0.000

30% DOT GAIN SETTING, CYAN [count 25]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.150	17	0.708	17.876	5.556	12.321
0.180	31	0.661	23.775	11.111	12.664
0.240	45	0.575	34.418	16.667	17.752
0.290	59	0.513	42.231	22.222	20.009
0.330	73	0.468	47.864	27.778	20.087
0.400	87	0.398	56.557	33.333	23.223
0.440	101	0.363	60.930	38.889	22.041
0.520	115	0.302	68.556	44.444	24.111
0.560	129	0.275	71.873	50.000	21.873
0.630	143	0.234	76.991	55.556	21.436
0.670	157	0.214	79.566	61.111	18.455
0.730	171	0.186	83.010	66.667	16.344
0.800	185	0.158	86.471	72.222	14.249
0.870	199	0.135	89.416	77.778	11.639
0.970	213	0.107	92.880	83.333	9.547
1.060	227	0.087	95.384	88.889	6.495
1.180	241	0.066	98.009	94.444	3.564
1.300	255	0.050	100.000	100.000	0.000

30% DOT GAIN SETTING, BLACK [count 25]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.120	17	0.759	15.421	5.556	9.865
0.170	31	0.676	25.009	11.111	13.898
0.230	45	0.589	35.149	16.667	18.483
0.290	59	0.513	43.981	22.222	21.759
0.340	73	0.457	50.464	27.778	22.686
0.390	87	0.407	56.241	33.333	22.908
0.450	101	0.355	62.351	38.889	23.462
0.500	115	0.316	66.836	44.444	22.392
0.570	129	0.269	72.308	50.000	22.308
0.620	143	0.240	75.710	55.556	20.154
0.700	157	0.200	80.401	61.111	19.289
0.790	171	0.162	84.741	66.667	18.075
0.890	185	0.129	88.618	72.222	16.396
1.000	199	0.100	91.969	77.778	14.191
1.130	213	0.074	94.976	83.333	11.642
1.220	227	0.060	96.588	88.889	7.699
1.380	241	0.042	98.747	94.444	4.302
1.510	255	0.031	100.000	100.000	0.000

30% DOT GAIN SETTING, MAGENTA [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.120	17	0.759	13.816	5.556	8.261
0.170	31	0.676	23.958	11.111	12.847
0.220	45	0.603	32.997	16.667	16.330
0.270	59	0.537	41.053	22.222	18.831
0.320	73	0.479	48.233	27.778	20.455
0.370	87	0.427	54.632	33.333	21.298
0.420	101	0.380	60.335	38.889	21.446
0.480	115	0.331	66.366	44.444	21.921
0.520	129	0.302	69.948	50.000	19.948
0.570	143	0.269	73.985	55.556	18.430
0.640	157	0.229	78.911	61.111	17.800
0.700	171	0.200	82.545	66.667	15.878
0.760	185	0.174	85.710	72.222	13.488
0.840	199	0.145	89.304	77.778	11.527
0.890	213	0.129	91.237	83.333	7.904
1.000	227	0.100	94.781	88.889	5.892
1.120	241	0.076	97.749	94.444	3.304
1.240	255	0.058	100.000	100.000	0.000

30% DOT GAIN SETTING, YELLOW [count 25]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.120	17	0.759	17.470	5.556	11.915
0.170	31	0.676	28.333	11.111	17.222
0.210	45	0.617	36.166	16.667	19.500
0.250	59	0.562	43.310	22.222	21.088
0.290	73	0.513	49.826	27.778	22.048
0.330	87	0.468	55.768	33.333	22.435
0.370	101	0.427	61.187	38.889	22.298
0.410	115	0.389	66.130	44.444	21.685
0.470	129	0.339	72.740	50.000	22.740
0.510	143	0.309	76.666	55.556	21.110
0.560	157	0.275	81.091	61.111	19.980
0.600	171	0.251	84.282	66.667	17.616
0.670	185	0.214	89.206	72.222	16.984
0.710	199	0.195	91.683	77.778	13.906
0.770	213	0.170	94.996	83.333	11.663
0.820	227	0.151	97.428	88.889	8.539
0.850	241	0.141	98.759	94.444	4.314
0.880	255	0.132	100.000	100.000	0.000

30% DOT GAIN SETTING, CYAN [count 30]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.140	17	0.724	15.841	5.556	10.285
0.190	31	0.646	25.690	11.111	14.579
0.230	45	0.589	32.793	16.667	16.126
0.280	59	0.525	40.799	22.222	18.577
0.320	73	0.479	46.572	27.778	18.794
0.380	87	0.417	54.294	33.333	20.960
0.440	101	0.363	61.019	38.889	22.130
0.500	115	0.316	66.876	44.444	22.432
0.560	129	0.275	71.978	50.000	21.978
0.610	143	0.245	75.722	55.556	20.167
0.670	157	0.214	79.682	61.111	18.571
0.700	171	0.200	81.467	66.667	14.800
0.780	185	0.166	85.663	72.222	13.441
0.860	199	0.138	89.154	77.778	11.376
0.960	213	0.110	92.703	83.333	9.370
1.050	227	0.089	95.269	88.889	6.380
1.180	241	0.066	98.152	94.444	3.707
1.290	255	0.051	100.000	100.000	0.000

30% DOT GAIN SETTING, BLACK [count 30]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.120	17	0.759	15.434	5.556	9.878
0.170	31	0.676	25.030	11.111	13.919
0.220	45	0.603	33.583	16.667	16.917
0.280	59	0.525	42.628	22.222	20.406
0.340	73	0.457	50.506	27.778	22.728
0.380	87	0.417	55.185	33.333	21.851
0.430	101	0.372	60.458	38.889	21.569
0.470	115	0.339	64.261	44.444	19.817
0.550	129	0.282	70.893	50.000	20.893
0.590	143	0.257	73.777	55.556	18.222
0.680	157	0.209	79.374	61.111	18.263
0.750	171	0.178	82.992	66.667	16.325
0.840	185	0.145	86.864	72.222	14.642
0.960	199	0.110	90.923	77.778	13.146
1.090	213	0.081	94.223	83.333	10.890
1.190	227	0.065	96.168	88.889	7.279
1.360	241	0.044	98.601	94.444	4.156
1.500	255	0.032	100.000	100.000	0.000

30% DOT GAIN SETTING, MAGENTA [count 30]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.130	17	0.741	13.794	5.556	8.239
0.180	31	0.661	23.920	11.111	12.809
0.220	45	0.603	31.221	16.667	14.555
0.270	59	0.537	39.451	22.222	17.229
0.330	73	0.468	48.155	27.778	20.377
0.370	87	0.427	53.324	33.333	19.991
0.420	101	0.380	59.151	38.889	20.262
0.480	115	0.331	65.312	44.444	20.868
0.500	129	0.316	67.184	50.000	17.184
0.580	143	0.263	73.866	55.556	18.311
0.650	157	0.224	78.784	61.111	17.673
0.700	171	0.200	81.842	66.667	15.175
0.760	185	0.174	85.076	72.222	12.853
0.840	199	0.145	88.748	77.778	10.970
0.910	213	0.123	91.450	83.333	8.117
1.020	227	0.095	94.908	88.889	6.019
1.140	241	0.072	97.803	94.444	3.359
1.260	255	0.055	100.000	100.000	0.000

30% DOT GAIN SETTING, YELLOW [count 30]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.130	17	0.741	19.666	5.556	14.111
0.180	31	0.661	30.240	11.111	19.129
0.230	45	0.589	39.664	16.667	22.997
0.260	59	0.550	44.819	22.222	22.597
0.300	73	0.501	51.161	27.778	23.383
0.340	87	0.457	56.945	33.333	23.612
0.380	101	0.417	62.220	38.889	23.331
0.420	115	0.380	67.031	44.444	22.587
0.480	129	0.331	73.465	50.000	23.465
0.520	143	0.302	77.287	55.556	21.731
0.550	157	0.282	79.931	61.111	18.820
0.600	171	0.251	83.951	66.667	17.284
0.680	185	0.209	89.493	72.222	17.271
0.700	199	0.200	90.727	77.778	12.949
0.760	213	0.174	94.104	83.333	10.770
0.820	227	0.151	97.045	88.889	8.156
0.850	241	0.141	98.370	94.444	3.925
0.890	255	0.129	100.000	100.000	0.000

30% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.068	3	0.855	0.000	0.000	0.000
0.140	17	0.724	16.196	5.556	10.641
0.186	31	0.652	25.224	11.111	14.113
0.232	45	0.586	33.344	16.667	16.677
0.284	59	0.520	41.544	22.222	19.322
0.330	73	0.468	48.024	27.778	20.246
0.394	87	0.404	55.970	33.333	22.637
0.442	101	0.361	61.207	38.889	22.318
0.510	115	0.309	67.701	44.444	23.257
0.560	129	0.275	71.868	50.000	21.868
0.620	143	0.240	76.275	55.556	20.719
0.680	157	0.209	80.112	61.111	19.001
0.720	171	0.191	82.392	66.667	15.725
0.794	185	0.161	86.093	72.222	13.871
0.874	199	0.134	89.445	77.778	11.667
0.972	213	0.107	92.793	83.333	9.459
1.062	227	0.087	95.268	88.889	6.379
1.186	241	0.065	97.938	94.444	3.493
1.314	255	0.049	100.000	100.000	0.000

30% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.056	3	0.879	0.000	0.000	0.000
0.122	17	0.755	14.615	5.556	9.059
0.172	31	0.673	24.299	11.111	13.187
0.228	45	0.592	33.900	16.667	17.233
0.282	59	0.522	42.056	22.222	19.834
0.338	73	0.459	49.509	27.778	21.731
0.380	87	0.417	54.501	33.333	21.167
0.440	101	0.363	60.844	38.889	21.955
0.488	115	0.325	65.324	44.444	20.880
0.560	129	0.275	71.181	50.000	21.181
0.596	143	0.254	73.765	55.556	18.209
0.682	157	0.208	79.136	61.111	18.025
0.760	171	0.174	83.168	66.667	16.501
0.856	185	0.139	87.232	72.222	15.010
0.970	199	0.107	91.025	77.778	13.247
1.108	213	0.078	94.465	83.333	11.131
1.202	227	0.063	96.255	88.889	7.366
1.366	241	0.043	98.584	94.444	4.140
1.508	255	0.031	100.000	100.000	0.000

30% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.062	3	0.867	0.000	0.000	0.000
0.126	17	0.748	14.681	5.556	9.126
0.178	31	0.664	25.115	11.111	14.004
0.222	45	0.600	33.019	16.667	16.352
0.274	59	0.532	41.383	22.222	19.161
0.322	73	0.476	48.264	27.778	20.486
0.374	87	0.423	54.908	33.333	21.575
0.420	101	0.380	60.158	38.889	21.269
0.480	115	0.331	66.221	44.444	21.777
0.508	129	0.310	68.776	50.000	18.776
0.576	143	0.265	74.337	55.556	18.782
0.642	157	0.228	78.963	61.111	17.851
0.696	171	0.201	82.258	66.667	15.591
0.758	185	0.175	85.569	72.222	13.346
0.834	199	0.147	89.032	77.778	11.255
0.898	213	0.126	91.514	83.333	8.181
1.008	227	0.098	95.011	88.889	6.123
1.126	241	0.075	97.898	94.444	3.454
1.238	255	0.058	100.000	100.000	0.000

30% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.126	17	0.748	18.841	5.556	13.285
0.176	31	0.667	29.554	11.111	18.443
0.218	45	0.605	37.648	16.667	20.982
0.250	59	0.562	43.310	22.222	21.088
0.294	73	0.508	50.445	27.778	22.667
0.336	87	0.461	56.613	33.333	23.280
0.372	101	0.425	61.445	38.889	22.556
0.412	115	0.387	66.365	44.444	21.921
0.472	129	0.337	72.945	50.000	22.945
0.514	143	0.306	77.039	55.556	21.484
0.556	157	0.278	80.756	61.111	19.645
0.606	171	0.248	84.736	66.667	18.070
0.672	185	0.213	89.336	72.222	17.113
0.702	199	0.199	91.206	77.778	13.428
0.760	213	0.174	94.476	83.333	11.142
0.814	227	0.153	97.151	88.889	8.262
0.844	241	0.143	98.500	94.444	4.055
0.880	255	0.132	100.000	100.000	0.000

Appendix Submenu: 35% Tables, Count Numbers 59,60, 3, 25, 30

35% DOT GAIN SETTING, BLACK [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.140	17	0.724	17.428	5.556	11.872
0.200	31	0.631	28.546	11.111	17.435
0.270	45	0.537	39.718	16.667	23.051
0.320	59	0.479	46.664	22.222	24.442
0.380	73	0.417	54.010	27.778	26.232
0.420	87	0.380	58.372	33.333	25.039
0.480	101	0.331	64.207	38.889	25.318
0.540	115	0.288	69.289	44.444	24.845
0.600	129	0.251	73.716	50.000	23.716
0.660	143	0.219	77.571	55.556	22.015
0.740	157	0.182	81.948	61.111	20.837
0.830	171	0.148	85.999	66.667	19.333
0.940	185	0.115	89.936	72.222	17.714
1.050	199	0.089	92.991	77.778	15.214
1.160	213	0.069	95.363	83.333	12.030
1.250	227	0.056	96.903	88.889	8.015
1.370	241	0.043	98.518	94.444	4.074
1.520	255	0.030	100.000	100.000	0.000

35% DOT GAIN SETTING, CYAN [count 59]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.150	17	0.708	17.902	5.556	12.347
0.210	31	0.617	29.323	11.111	18.212
0.270	45	0.537	39.271	16.667	22.604
0.320	59	0.479	46.572	22.222	24.350
0.370	73	0.427	53.080	27.778	25.302
0.440	87	0.363	61.019	33.333	27.685
0.510	101	0.309	67.776	38.889	28.887
0.550	115	0.282	71.176	44.444	26.731
0.610	129	0.245	75.722	50.000	25.722
0.660	143	0.219	79.060	55.556	23.504
0.730	157	0.186	83.132	61.111	22.020
0.770	171	0.170	85.180	66.667	18.513
0.830	185	0.148	87.920	72.222	15.697
0.930	199	0.117	91.723	77.778	13.945
0.970	213	0.107	93.015	83.333	9.682
1.080	227	0.083	96.013	88.889	7.124
1.180	241	0.066	98.152	94.444	3.707
1.290	255	0.051	100.000	100.000	0.000

35% DOT GAIN SETTING, MAGENTA [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.150	17	0.708	19.977	5.556	14.422
0.190	31	0.646	27.611	11.111	16.500
0.270	45	0.537	40.923	16.667	24.256
0.320	59	0.479	48.080	22.222	25.857
0.370	73	0.427	54.458	27.778	26.680
0.420	87	0.380	60.143	33.333	26.810
0.480	101	0.331	66.155	38.889	27.266
0.510	115	0.309	68.864	44.444	24.419
0.580	129	0.263	74.501	50.000	24.501
0.630	143	0.234	78.007	55.556	22.451
0.700	157	0.200	82.283	61.111	21.172
0.770	171	0.170	85.923	66.667	19.256
0.830	185	0.148	88.608	72.222	16.386
0.890	199	0.129	90.947	77.778	13.170
0.960	213	0.110	93.297	83.333	9.964
1.050	227	0.089	95.812	88.889	6.924
1.150	241	0.071	98.059	94.444	3.614
1.260	255	0.055	100.000	100.000	0.000

35% DOT GAIN SETTING, YELLOW [count 59]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.140	17	0.724	21.796	5.556	16.240
0.200	31	0.631	34.009	11.111	22.898
0.240	45	0.575	41.263	16.667	24.596
0.280	59	0.525	47.879	22.222	25.656
0.330	73	0.468	55.336	27.778	27.558
0.370	87	0.427	60.713	33.333	27.380
0.410	101	0.389	65.617	38.889	26.728
0.450	115	0.355	70.090	44.444	25.645
0.490	129	0.324	74.169	50.000	24.169
0.550	143	0.282	79.624	55.556	24.069
0.590	157	0.257	82.865	61.111	21.754
0.650	171	0.224	87.198	66.667	20.532
0.710	185	0.195	90.973	72.222	18.750
0.740	199	0.182	92.673	77.778	14.895
0.790	213	0.162	95.259	83.333	11.925
0.820	227	0.151	96.673	88.889	7.784
0.860	241	0.138	98.413	94.444	3.969
0.900	255	0.126	100.000	100.000	0.000

35% DOT GAIN SETTING, CYAN [count 60]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.150	17	0.708	17.876	5.556	12.321
0.210	31	0.617	29.281	11.111	18.169
0.270	45	0.537	39.213	16.667	22.547
0.320	59	0.479	46.504	22.222	24.282
0.380	73	0.417	54.215	27.778	26.437
0.440	87	0.363	60.930	33.333	27.597
0.510	101	0.309	67.677	38.889	28.788
0.550	115	0.282	71.072	44.444	26.627
0.600	129	0.251	74.898	50.000	24.898
0.680	143	0.209	80.174	55.556	24.618
0.730	157	0.186	83.010	61.111	21.899
0.780	171	0.166	85.538	66.667	18.872
0.840	185	0.145	88.212	72.222	15.990
0.910	199	0.123	90.898	77.778	13.120
0.980	213	0.105	93.184	83.333	9.851
1.090	227	0.081	96.109	88.889	7.221
1.190	241	0.065	98.196	94.444	3.752
1.300	255	0.050	100.000	100.000	0.000

35% DOT GAIN SETTING, BLACK [count 60]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.140	17	0.724	21.796	5.556	16.240
0.200	31	0.631	34.009	11.111	22.898
0.240	45	0.575	41.263	16.667	24.596
0.280	59	0.525	47.879	22.222	25.656
0.330	73	0.468	55.336	27.778	27.558
0.370	87	0.427	60.713	33.333	27.380
0.410	101	0.389	65.617	38.889	26.728
0.450	115	0.355	70.090	44.444	25.645
0.490	129	0.324	74.169	50.000	24.169
0.550	143	0.282	79.624	55.556	24.069
0.590	157	0.257	82.865	61.111	21.754
0.650	171	0.224	87.198	66.667	20.532
0.710	185	0.195	90.973	72.222	18.750
0.740	199	0.182	92.673	77.778	14.895
0.790	213	0.162	95.259	83.333	11.925
0.820	227	0.151	96.673	88.889	7.784
0.860	241	0.138	98.413	94.444	3.969
0.900	255	0.126	100.000	100.000	0.000

35% DOT GAIN SETTING, MAGENTA [count 60]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.160	17	0.692	21.952	5.556	16.397
0.200	31	0.631	29.412	11.111	18.301
0.270	45	0.537	40.923	16.667	24.256
0.310	59	0.490	46.713	22.222	24.491
0.370	73	0.427	54.458	27.778	26.680
0.410	87	0.389	59.058	33.333	25.725
0.480	101	0.331	66.155	38.889	27.266
0.510	115	0.309	68.864	44.444	24.419
0.570	129	0.269	73.750	50.000	23.750
0.620	143	0.240	77.337	55.556	21.782
0.680	157	0.209	81.131	61.111	20.020
0.760	171	0.174	85.438	66.667	18.771
0.830	185	0.148	88.608	72.222	16.386
0.900	199	0.126	91.307	77.778	13.529
0.950	213	0.112	92.984	83.333	9.651
1.050	227	0.089	95.812	88.889	6.924
1.120	241	0.076	97.438	94.444	2.994
1.260	255	0.055	100.000	100.000	0.000

35% DOT GAIN SETTING, YELLOW [count 60]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.140	17	0.724	21.879	5.556	16.324
0.210	31	0.617	36.024	11.111	24.913
0.240	45	0.575	41.422	16.667	24.755
0.280	59	0.525	48.063	22.222	25.841
0.330	73	0.468	55.548	27.778	27.771
0.370	87	0.427	60.946	33.333	27.613
0.410	101	0.389	65.869	38.889	26.981
0.460	115	0.347	71.419	44.444	26.974
0.500	129	0.316	75.420	50.000	25.420
0.550	143	0.282	79.931	55.556	24.375
0.590	157	0.257	83.183	61.111	22.072
0.640	171	0.229	86.850	66.667	20.183
0.710	185	0.195	91.323	72.222	19.100
0.750	199	0.178	93.573	77.778	15.795
0.800	213	0.158	96.109	83.333	12.776
0.830	227	0.148	97.497	88.889	8.608
0.860	241	0.138	98.792	94.444	4.347
0.890	255	0.129	100.000	100.000	0.000

35% DOT GAIN SETTING, CYAN [count 3]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.150	17	0.708	17.826	5.556	12.271
0.210	31	0.617	29.198	11.111	18.087
0.270	45	0.537	39.103	16.667	22.437
0.320	59	0.479	46.374	22.222	24.151
0.380	73	0.417	54.062	27.778	26.284
0.450	87	0.355	61.788	33.333	28.454
0.510	101	0.309	67.487	38.889	28.598
0.540	115	0.288	70.055	44.444	25.611
0.620	129	0.240	76.095	50.000	26.095
0.670	143	0.214	79.343	55.556	23.787
0.720	157	0.191	82.237	61.111	21.126
0.770	171	0.170	84.817	66.667	18.150
0.830	185	0.148	87.545	72.222	15.323
0.920	199	0.120	90.991	77.778	13.214
0.970	213	0.107	92.619	83.333	9.286
1.100	227	0.079	96.070	88.889	7.181
1.200	241	0.063	98.104	94.444	3.659
1.320	255	0.048	100.000	100.000	0.000

35% DOT GAIN SETTING, BLACK [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.140	17	0.724	17.457	5.556	11.902
0.200	31	0.631	28.595	11.111	17.484
0.270	45	0.537	39.785	16.667	23.118
0.320	59	0.479	46.743	22.222	24.521
0.380	73	0.417	54.101	27.778	26.324
0.430	87	0.372	59.502	33.333	26.169
0.490	101	0.324	65.214	38.889	26.325
0.550	115	0.282	70.189	44.444	25.745
0.600	129	0.251	73.841	50.000	23.841
0.680	143	0.209	78.875	55.556	23.320
0.750	157	0.178	82.581	61.111	21.470
0.860	171	0.138	87.322	66.667	20.655
0.960	185	0.110	90.704	72.222	18.482
1.050	199	0.089	93.149	77.778	15.371
1.170	213	0.068	95.713	83.333	12.379
1.270	227	0.054	97.369	88.889	8.480
1.390	241	0.041	98.914	94.444	4.470
1.500	255	0.032	100.000	100.000	0.000

35% DOT GAIN SETTING, MAGENTA [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.150	17	0.708	20.074	5.556	14.519
0.190	31	0.646	27.745	11.111	16.634
0.260	45	0.550	39.580	16.667	22.914
0.310	59	0.490	46.939	22.222	24.717
0.370	73	0.427	54.722	27.778	26.944
0.410	87	0.389	59.344	33.333	26.010
0.460	101	0.347	64.554	38.889	25.665
0.480	115	0.331	66.475	44.444	22.031
0.550	129	0.282	72.545	50.000	22.545
0.600	143	0.251	76.320	55.556	20.764
0.670	157	0.214	80.924	61.111	19.813
0.750	171	0.178	85.353	66.667	18.687
0.810	185	0.155	88.179	72.222	15.957
0.870	199	0.135	90.640	77.778	12.862
0.930	213	0.117	92.783	83.333	9.450
1.030	227	0.093	95.759	88.889	6.870
1.130	241	0.074	98.123	94.444	3.678
1.230	255	0.059	100.000	100.000	0.000

35% DOT GAIN SETTING, YELLOW [count 3]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.150	17	0.708	22.055	5.556	16.500
0.200	31	0.631	32.471	11.111	21.360
0.250	45	0.562	41.754	16.667	25.088
0.280	59	0.525	46.832	22.222	24.610
0.330	73	0.468	54.554	27.778	26.776
0.380	87	0.417	61.436	33.333	28.102
0.410	101	0.389	65.200	38.889	26.311
0.460	115	0.347	70.924	44.444	26.480
0.500	129	0.316	75.052	50.000	25.052
0.550	143	0.282	79.704	55.556	24.149
0.580	157	0.263	82.249	61.111	21.138
0.660	171	0.219	88.236	66.667	21.570
0.700	185	0.200	90.841	72.222	18.618
0.730	199	0.186	92.642	77.778	14.865
0.780	213	0.166	95.382	83.333	12.049
0.820	227	0.151	97.358	88.889	8.469
0.850	241	0.141	98.724	94.444	4.280
0.880	255	0.132	100.000	100.000	0.000

35% DOT GAIN SETTING, CYAN [count 25]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.150	17	0.708	17.876	5.556	12.321
0.210	31	0.617	29.281	11.111	18.169
0.270	45	0.537	39.213	16.667	22.547
0.320	59	0.479	46.504	22.222	24.282
0.380	73	0.417	54.215	27.778	26.437
0.440	87	0.363	60.930	33.333	27.597
0.510	101	0.309	67.677	38.889	28.788
0.540	115	0.288	70.252	44.444	25.808
0.590	129	0.257	74.168	50.000	24.168
0.670	143	0.214	79.566	55.556	24.011
0.720	157	0.191	82.469	61.111	21.358
0.770	171	0.170	85.056	66.667	18.389
0.840	185	0.145	88.212	72.222	15.990
0.920	199	0.120	91.248	77.778	13.470
0.990	213	0.102	93.482	83.333	10.149
1.080	227	0.083	95.873	88.889	6.984
1.200	241	0.063	98.380	94.444	3.935
1.300	255	0.050	100.000	100.000	0.000

35% DOT GAIN SETTING, BLACK [count 25]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.140	17	0.724	19.405	5.556	13.850
0.200	31	0.631	30.280	11.111	19.169
0.260	45	0.550	39.751	16.667	23.084
0.320	59	0.479	48.000	22.222	25.778
0.380	73	0.417	55.185	27.778	27.407
0.420	87	0.380	59.451	33.333	26.118
0.480	101	0.331	65.158	38.889	26.269
0.540	115	0.288	70.129	44.444	25.684
0.590	129	0.257	73.777	50.000	23.777
0.660	143	0.219	78.229	55.556	22.673
0.730	157	0.186	82.017	61.111	20.906
0.830	171	0.148	86.472	66.667	19.806
0.920	185	0.120	89.693	72.222	17.471
1.030	199	0.093	92.822	77.778	15.044
1.150	213	0.071	95.443	83.333	12.110
1.240	227	0.058	96.985	88.889	8.096
1.360	241	0.044	98.601	94.444	4.156
1.500	255	0.032	100.000	100.000	0.000

35% DOT GAIN SETTING, MAGENTA [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.150	17	0.708	19.977	5.556	14.422
0.200	31	0.631	29.412	11.111	18.301
0.270	45	0.537	40.923	16.667	24.256
0.320	59	0.479	48.080	22.222	25.857
0.380	73	0.417	55.648	27.778	27.870
0.430	87	0.372	61.204	33.333	27.870
0.490	101	0.324	67.079	38.889	28.190
0.520	115	0.302	69.726	44.444	25.281
0.580	129	0.263	74.501	50.000	24.501
0.640	143	0.229	78.660	55.556	23.105
0.700	157	0.200	82.283	61.111	21.172
0.770	171	0.170	85.923	66.667	19.256
0.840	185	0.145	89.021	72.222	16.799
0.900	199	0.126	91.307	77.778	13.529
0.960	213	0.110	93.297	83.333	9.964
1.060	227	0.087	96.061	88.889	7.172
1.140	241	0.072	97.857	94.444	3.412
1.260	255	0.055	100.000	100.000	0.000

35% DOT GAIN SETTING, YELLOW [count 25]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.150	17	0.708	21.966	5.556	16.410
0.200	31	0.631	32.340	11.111	21.229
0.240	45	0.575	39.821	16.667	23.154
0.280	59	0.525	46.643	22.222	24.421
0.330	73	0.468	54.333	27.778	26.556
0.380	87	0.417	61.187	33.333	27.854
0.410	101	0.389	64.936	38.889	26.048
0.450	115	0.355	69.549	44.444	25.105
0.490	129	0.324	73.756	50.000	23.756
0.540	143	0.288	78.498	55.556	22.942
0.580	157	0.263	81.917	61.111	20.806
0.660	171	0.219	87.879	66.667	21.213
0.700	185	0.200	90.473	72.222	18.251
0.730	199	0.186	92.268	77.778	14.490
0.790	213	0.162	95.505	83.333	12.172
0.820	227	0.151	96.964	88.889	8.075
0.850	241	0.141	98.325	94.444	3.881
0.890	255	0.129	100.000	100.000	0.000

35% DOT GAIN SETTING, CYAN [count 30]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.150	17	0.708	17.851	5.556	12.295
0.210	31	0.617	29.239	11.111	18.128
0.270	45	0.537	39.158	16.667	22.491
0.330	59	0.468	47.796	22.222	25.574
0.390	73	0.407	55.320	27.778	27.543
0.450	87	0.355	61.874	33.333	28.540
0.520	101	0.302	68.458	38.889	29.569
0.550	115	0.282	70.971	44.444	26.526
0.630	129	0.234	76.882	50.000	26.882
0.680	143	0.209	80.060	55.556	24.504
0.740	157	0.182	83.421	61.111	22.310
0.790	171	0.162	85.888	66.667	19.221
0.850	185	0.141	88.497	72.222	16.274
0.950	199	0.112	92.118	77.778	14.341
0.990	213	0.102	93.349	83.333	10.016
1.110	227	0.078	96.429	88.889	7.540
1.210	241	0.062	98.419	94.444	3.975
1.310	255	0.049	100.000	100.000	0.000

35% DOT GAIN SETTING, BLACK [count 30]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.130	17	0.741	17.457	5.556	11.902
0.200	31	0.631	30.306	11.111	19.195
0.260	45	0.550	39.785	16.667	23.118
0.320	59	0.479	48.041	22.222	25.819
0.380	73	0.417	55.232	27.778	27.454
0.420	87	0.380	59.502	33.333	26.169
0.490	101	0.324	66.092	38.889	27.203
0.550	115	0.282	70.953	44.444	26.509
0.600	129	0.251	74.522	50.000	24.522
0.670	143	0.214	78.875	55.556	23.320
0.730	157	0.186	82.087	61.111	20.976
0.830	171	0.148	86.546	66.667	19.880
0.940	185	0.115	90.400	72.222	18.177
1.070	199	0.085	93.858	77.778	16.080
1.140	213	0.072	95.333	83.333	12.000
1.250	227	0.056	97.220	88.889	8.331
1.340	241	0.046	98.446	94.444	4.001
1.490	255	0.032	100.000	100.000	0.000

35% DOT GAIN SETTING, MAGENTA [count 30]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.150	17	0.708	20.009	5.556	14.453
0.200	31	0.631	29.458	11.111	18.347
0.250	45	0.562	37.880	16.667	21.214
0.310	59	0.490	46.787	22.222	24.564
0.360	73	0.437	53.324	27.778	25.546
0.410	87	0.389	59.151	33.333	25.817
0.470	101	0.339	65.312	38.889	26.424
0.500	115	0.316	68.088	44.444	23.644
0.570	129	0.269	73.866	50.000	23.866
0.610	143	0.245	76.773	55.556	21.217
0.670	157	0.214	80.661	61.111	19.550
0.760	171	0.174	85.572	66.667	18.906
0.810	185	0.155	87.892	72.222	15.670
0.890	199	0.129	91.090	77.778	13.312
0.940	213	0.115	92.810	83.333	9.476
1.030	227	0.093	95.447	88.889	6.559
1.120	241	0.076	97.591	94.444	3.147
1.250	255	0.056	100.000	100.000	0.000

35% DOT GAIN SETTING, YELLOW [count 30]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.140	17	0.724	21.966	5.556	16.410
0.190	31	0.646	32.340	11.111	21.229
0.240	45	0.575	41.586	16.667	24.919
0.280	59	0.525	48.253	22.222	26.031
0.330	73	0.468	55.768	27.778	27.990
0.370	87	0.427	61.187	33.333	27.854
0.410	101	0.389	66.130	38.889	27.241
0.450	115	0.355	70.637	44.444	26.193
0.500	129	0.316	75.718	50.000	25.718
0.550	143	0.282	80.247	55.556	24.691
0.590	157	0.257	83.512	61.111	22.401
0.660	171	0.219	88.550	66.667	21.884
0.700	185	0.200	91.085	72.222	18.863
0.750	199	0.178	93.942	77.778	16.165
0.810	213	0.155	96.964	83.333	13.631
0.830	227	0.148	97.882	88.889	8.993
0.850	241	0.141	98.759	94.444	4.314
0.880	255	0.132	100.000	100.000	0.000

35% DOT GAIN SETTING, CYAN [average]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.150	17	0.708	17.866	5.556	12.310
0.210	31	0.617	29.264	11.111	18.153
0.270	45	0.537	39.191	16.667	22.524
0.322	59	0.476	46.752	22.222	24.530
0.380	73	0.417	54.183	27.778	26.406
0.444	87	0.360	61.310	33.333	27.977
0.512	101	0.308	67.816	38.889	28.927
0.546	115	0.284	70.706	44.444	26.261
0.610	129	0.245	75.569	50.000	25.569
0.672	143	0.213	79.643	55.556	24.088
0.728	157	0.187	82.856	61.111	21.744
0.776	171	0.167	85.298	66.667	18.631
0.838	185	0.145	88.078	72.222	15.856
0.926	199	0.119	91.401	77.778	13.623
0.980	213	0.105	93.131	83.333	9.798
1.092	227	0.081	96.101	88.889	7.212
1.196	241	0.064	98.251	94.444	3.806
1.304	255	0.050	100.000	100.000	0.000

35% DOT GAIN SETTING, BLACK [average]

density	step	reflectance	dot area	relative drive	gain
0.054	3	0.883	0.000	0.000	0.000
0.138	17	0.728	18.453	5.556	12.898
0.200	31	0.631	29.958	11.111	18.847
0.260	45	0.550	39.632	16.667	22.966
0.312	59	0.488	47.001	22.222	24.779
0.370	73	0.427	54.243	27.778	26.465
0.412	87	0.387	58.915	33.333	25.582
0.470	101	0.339	64.668	38.889	25.779
0.526	115	0.298	69.539	44.444	25.094
0.576	129	0.265	73.388	50.000	23.388
0.644	143	0.227	77.959	55.556	22.404
0.708	157	0.196	81.655	61.111	20.544
0.800	171	0.158	86.098	66.667	19.432
0.894	185	0.128	89.764	72.222	17.541
0.988	199	0.103	92.715	77.778	14.938
1.082	213	0.083	95.093	83.333	11.759
1.166	227	0.068	96.823	88.889	7.934
1.264	241	0.054	98.461	94.444	4.016
1.382	255	0.041	100.000	100.000	0.000

35% DOT GAIN SETTING, MAGENTA [average]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.152	17	0.705	20.402	5.556	14.846
0.196	31	0.637	28.733	11.111	17.622
0.264	45	0.545	40.057	16.667	23.390
0.314	59	0.485	47.323	22.222	25.101
0.370	73	0.427	54.526	27.778	26.749
0.416	87	0.384	59.787	33.333	26.454
0.476	101	0.334	65.862	38.889	26.973
0.504	115	0.313	68.422	44.444	23.978
0.570	129	0.269	73.843	50.000	23.843
0.620	143	0.240	77.434	55.556	21.879
0.684	157	0.207	81.467	61.111	20.356
0.762	171	0.173	85.643	66.667	18.977
0.824	185	0.150	88.467	72.222	16.245
0.890	199	0.129	91.061	77.778	13.284
0.948	213	0.113	93.037	83.333	9.704
1.044	227	0.090	95.780	88.889	6.892
1.132	241	0.074	97.814	94.444	3.370
1.252	255	0.056	100.000	100.000	0.000

35% DOT GAIN SETTING, YELLOW [average]

density	step	reflectance	dot area	relative drive	gain
0.054	3	0.883	0.000	0.000	0.000
0.144	17	0.718	21.931	5.556	16.375
0.200	31	0.631	33.453	11.111	22.342
0.242	45	0.573	41.170	16.667	24.504
0.280	59	0.525	47.538	22.222	25.315
0.330	73	0.468	55.110	27.778	27.333
0.374	87	0.423	61.090	33.333	27.757
0.410	101	0.389	65.551	38.889	26.662
0.454	115	0.352	70.525	44.444	26.081
0.496	129	0.319	74.825	50.000	24.825
0.548	143	0.283	79.604	55.556	24.048
0.586	157	0.259	82.751	61.111	21.640
0.654	171	0.222	87.740	66.667	21.073
0.704	185	0.198	90.941	72.222	18.718
0.740	199	0.182	93.027	77.778	15.250
0.794	213	0.161	95.850	83.333	12.517
0.824	227	0.150	97.273	88.889	8.385
0.854	241	0.140	98.602	94.444	4.157
0.888	255	0.129	100.000	100.000	0.000

Appendix C

Table Sets, Second Run

[Image Test Sheets at Five Dot Gain Settings]

Appendix Submenu: -5% Tables, Count Number 45, 2nd Run

Confirmation 35% DOT GAIN SETTING, BLACK [count 45]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.130	17	0.741	17.373	5.556	11.817
0.190	31	0.646	28.456	11.111	17.345
0.250	45	0.562	38.109	16.667	21.443
0.310	59	0.490	46.517	22.222	24.295
0.380	73	0.417	54.965	27.778	27.187
0.410	87	0.389	58.188	33.333	24.855
0.480	101	0.331	64.899	38.889	26.010
0.540	115	0.288	69.849	44.444	25.405
0.590	129	0.257	73.483	50.000	23.483
0.650	143	0.224	77.326	55.556	21.771
0.710	157	0.195	80.674	61.111	19.562
0.800	171	0.158	84.902	66.667	18.235
0.910	185	0.123	89.011	72.222	16.789
1.050	199	0.089	92.939	77.778	15.161
1.160	213	0.069	95.250	83.333	11.916
1.280	227	0.052	97.185	88.889	8.296
1.390	241	0.041	98.545	94.444	4.101
1.550	255	0.028	100.000	100.000	0.000

Confirmation -5% DOT GAIN SETTING, CYAN [count 45]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.090	17	0.813	4.756	5.556	-0.799
0.100	31	0.794	7.053	11.111	-4.058
0.130	45	0.741	13.636	16.667	-3.031
0.140	59	0.724	15.731	22.222	-6.491
0.170	73	0.676	21.734	27.778	-6.043
0.190	87	0.646	25.512	33.333	-7.821
0.200	101	0.631	27.337	38.889	-11.552
0.240	115	0.575	34.230	44.444	-10.214
0.260	129	0.550	37.446	50.000	-12.554
0.310	143	0.490	44.865	55.556	-10.690
0.340	157	0.457	48.924	61.111	-12.187
0.380	171	0.417	53.918	66.667	-12.749
0.440	185	0.363	60.596	72.222	-11.626
0.520	199	0.302	68.180	77.778	-9.598
0.610	213	0.245	75.198	83.333	-8.135
0.700	227	0.200	80.902	88.889	-7.986
0.850	241	0.141	88.137	94.444	-6.307
1.340	255	0.046	100.000	100.000	0.000

Confirmation -5% DOT GAIN SETTING, MAGENTA [count 45]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.422	5.556	-3.133
0.090	31	0.813	7.103	11.111	-4.009
0.120	45	0.759	13.731	16.667	-2.936
0.130	59	0.741	15.841	22.222	-6.382
0.150	73	0.708	19.917	27.778	-7.861
0.170	87	0.676	23.810	33.333	-9.523
0.190	101	0.646	27.528	38.889	-11.361
0.220	115	0.603	32.793	44.444	-11.652
0.260	129	0.550	39.271	50.000	-10.729
0.290	143	0.513	43.752	55.556	-11.804
0.330	157	0.468	49.265	61.111	-11.846
0.370	171	0.427	54.294	66.667	-12.373
0.420	185	0.380	59.961	72.222	-12.261
0.470	199	0.339	65.013	77.778	-12.765
0.540	213	0.288	71.176	83.333	-12.158
0.640	227	0.229	78.423	88.889	-10.466
0.780	241	0.166	86.136	94.444	-8.309
1.280	255	0.052	100.000	100.000	0.000

Yellow -5% DOT GAIN SETTING, YELLOW [count 45]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.070	17	0.851	4.782	5.556	-0.773
0.090	31	0.813	9.349	11.111	-1.762
0.120	45	0.759	15.818	16.667	-0.849
0.130	59	0.741	17.876	22.222	-4.346
0.150	73	0.708	21.854	27.778	-5.924
0.170	87	0.676	25.653	33.333	-7.681
0.190	101	0.646	29.281	38.889	-9.608
0.220	115	0.603	34.418	44.444	-10.026
0.260	129	0.550	40.739	50.000	-9.261
0.290	143	0.513	45.112	55.556	-10.443
0.330	157	0.468	50.492	61.111	-10.619
0.370	171	0.427	55.399	66.667	-11.268
0.420	185	0.380	60.930	72.222	-11.292
0.470	199	0.339	65.859	77.778	-11.919
0.540	213	0.288	71.873	83.333	-11.461
0.640	227	0.229	78.945	88.889	-9.944
0.780	241	0.166	86.471	94.444	-7.974
1.280	255	0.052	100.000	100.000	0.000

Appendix Submenu: 0% Tables, Count Number 45, 2nd Run

0% DOT GAIN SETTING, CYAN [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	4.782	5.556	-0.773
0.100	31	0.794	9.349	11.111	-1.762
0.130	45	0.741	15.818	16.667	-0.849
0.150	59	0.708	19.888	22.222	-2.334
0.170	73	0.676	23.775	27.778	-4.002
0.200	87	0.631	29.281	33.333	-4.053
0.230	101	0.589	34.418	38.889	-4.470
0.260	115	0.550	39.213	44.444	-5.231
0.290	129	0.513	43.688	50.000	-6.312
0.340	143	0.457	50.492	55.556	-5.063
0.390	157	0.407	56.557	61.111	-4.554
0.450	171	0.355	62.970	66.667	-3.697
0.500	185	0.316	67.677	72.222	-4.545
0.580	199	0.263	74.168	77.778	-3.610
0.650	213	0.224	78.945	83.333	-4.389
0.770	227	0.170	85.538	88.889	-3.350
0.950	241	0.112	92.568	94.444	-1.876
1.290	255	0.051	100.000	100.000	0.000

0% DOT GAIN SETTING, BLACK [count 59]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.080	31	0.832	4.634	11.111	-6.477
0.120	45	0.759	13.287	16.667	-3.380
0.130	59	0.741	15.328	22.222	-6.894
0.160	73	0.692	21.178	27.778	-6.600
0.190	87	0.646	26.637	33.333	-6.696
0.220	101	0.603	31.732	38.889	-7.157
0.260	115	0.550	38.000	44.444	-6.444
0.290	129	0.513	42.337	50.000	-7.663
0.330	143	0.468	47.672	55.556	-7.884
0.380	157	0.417	53.685	61.111	-7.426
0.440	171	0.363	60.045	66.667	-6.622
0.500	185	0.316	65.584	72.222	-6.639
0.590	199	0.257	72.581	77.778	-5.197
0.690	213	0.204	78.831	83.333	-4.502
0.820	227	0.151	85.076	88.889	-3.813
1.100	241	0.079	93.579	94.444	-0.866
1.600	255	0.025	100.000	100.000	0.000

Confirmation 0% DOT GAIN SETTING, MAGENTA [count 45]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.426	5.556	-3.130
0.090	31	0.813	7.113	11.111	-3.998
0.110	45	0.776	11.590	16.667	-5.077
0.130	59	0.741	15.864	22.222	-6.358
0.150	73	0.708	19.947	27.778	-7.831
0.170	87	0.676	23.846	33.333	-9.488
0.190	101	0.646	27.569	38.889	-11.320
0.230	115	0.589	34.520	44.444	-9.924
0.280	129	0.525	42.356	50.000	-7.644
0.310	143	0.490	46.642	55.556	-8.914
0.360	157	0.437	53.159	61.111	-7.952
0.410	171	0.389	58.968	66.667	-7.699
0.460	185	0.347	64.144	72.222	-8.078
0.510	199	0.309	68.758	77.778	-9.020
0.590	213	0.257	75.120	83.333	-8.214
0.690	227	0.204	81.588	88.889	-7.300
0.860	241	0.138	89.681	94.444	-4.764
1.270	255	0.054	100.000	100.000	0.000

Yellow 0% DOT GAIN SETTING, YELLOW [count 45]

density	step	reflectance	dot area	relative drive	gain
0.040	3	0.912	0.000	0.000	0.000
0.060	17	0.871	5.348	5.556	-0.207
0.090	31	0.813	12.923	11.111	1.812
0.110	45	0.776	17.690	16.667	1.023
0.130	59	0.741	22.242	22.222	0.020
0.150	73	0.708	26.589	27.778	-1.188
0.170	87	0.676	30.741	33.333	-2.592
0.200	101	0.631	36.621	38.889	-2.268
0.220	115	0.603	40.321	44.444	-4.123
0.250	129	0.562	45.562	50.000	-4.438
0.280	143	0.525	50.452	55.556	-5.103
0.310	157	0.490	55.016	61.111	-6.095
0.350	171	0.447	60.632	66.667	-6.035
0.390	185	0.407	65.753	72.222	-6.469
0.440	199	0.363	71.525	77.778	-6.253
0.510	213	0.309	78.568	83.333	-4.766
0.590	227	0.257	85.342	88.889	-3.547
0.670	241	0.214	90.977	94.444	-3.468
0.840	255	0.145	100.000	100.000	0.000

Appendix Submenu: 5% Tables, Count Number 45, 2nd Run

Confirmation 5% DOT GAIN SETTING, CYAN [count 45]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.080	17	0.832	4.756	5.556	-0.799
0.100	31	0.794	9.298	11.111	-1.813
0.130	45	0.741	15.731	16.667	-0.936
0.150	59	0.708	19.779	22.222	-2.443
0.180	73	0.661	25.512	27.778	-2.265
0.210	87	0.617	30.863	33.333	-2.470
0.240	101	0.575	35.856	38.889	-3.033
0.280	115	0.525	42.000	44.444	-2.445
0.320	129	0.479	47.602	50.000	-2.398
0.380	143	0.417	55.096	55.556	-0.460
0.440	157	0.363	61.622	61.111	0.511
0.480	171	0.331	65.499	66.667	-1.168
0.540	185	0.288	70.683	72.222	-1.539
0.610	199	0.245	75.892	77.778	-1.886
0.720	213	0.191	82.556	83.333	-0.777
0.840	227	0.145	88.137	88.889	-0.751
1.000	241	0.100	93.542	94.444	-0.902
1.330	255	0.047	100.000	100.000	0.000

Confirmation 5% DOT GAIN SETTING, BLACK [count 45]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.060	17	0.871	2.349	5.556	-3.207
0.090	31	0.813	9.079	11.111	-2.032
0.120	45	0.759	15.361	16.667	-1.306
0.150	59	0.708	21.223	22.222	-0.999
0.170	73	0.676	24.912	27.778	-2.866
0.200	87	0.631	30.137	33.333	-3.197
0.230	101	0.589	35.013	38.889	-3.876
0.270	115	0.537	41.011	44.444	-3.433
0.320	129	0.479	47.773	50.000	-2.227
0.370	143	0.427	53.800	55.556	-1.756
0.410	157	0.389	58.145	61.111	-2.966
0.470	171	0.339	63.958	66.667	-2.709
0.540	185	0.288	69.798	72.222	-2.425
0.610	199	0.245	74.768	77.778	-3.010
0.710	213	0.195	80.614	83.333	-2.720
0.850	227	0.141	86.835	88.889	-2.054
1.090	241	0.081	93.778	94.444	-0.667
1.560	255	0.028	100.000	100.000	0.000

Confirmation 5% DOT GAIN SETTING, MAGENTA [count 45]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.070	17	0.851	2.430	5.556	-3.126
0.090	31	0.813	7.124	11.111	-3.987
0.110	45	0.776	11.607	16.667	-5.059
0.140	59	0.724	17.957	22.222	-4.266
0.170	73	0.676	23.882	27.778	-3.896
0.190	87	0.646	27.611	33.333	-5.722
0.230	101	0.589	34.573	38.889	-4.316
0.260	115	0.550	39.390	44.444	-5.055
0.300	129	0.501	45.315	50.000	-4.685
0.350	143	0.447	51.994	55.556	-3.561
0.400	157	0.398	57.947	61.111	-3.164
0.450	171	0.355	63.253	66.667	-3.414
0.490	185	0.324	67.079	72.222	-5.143
0.570	199	0.269	73.750	77.778	-4.027
0.640	213	0.229	78.660	83.333	-4.673
0.730	227	0.186	83.915	88.889	-4.974
0.910	241	0.123	91.658	94.444	-2.787
1.260	255	0.055	100.000	100.000	0.000

Yellow 5% DOT GAIN SETTING, YELLOW [count 45]

density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.080	17	0.832	7.967	5.556	2.411
0.100	31	0.794	12.980	11.111	1.869
0.120	45	0.759	17.768	16.667	1.101
0.130	59	0.741	20.080	22.222	-2.142
0.160	73	0.692	26.707	27.778	-1.071
0.190	87	0.646	32.891	33.333	-0.443
0.210	101	0.617	36.782	38.889	-2.107
0.240	115	0.575	42.294	44.444	-2.151
0.270	129	0.537	47.438	50.000	-2.562
0.310	143	0.490	53.766	55.556	-1.790
0.350	157	0.447	59.537	61.111	-1.574
0.390	171	0.407	64.801	66.667	-1.866
0.440	185	0.363	70.734	72.222	-1.489
0.480	199	0.331	75.012	77.778	-2.766
0.540	213	0.288	80.734	83.333	-2.599
0.640	227	0.229	88.678	88.889	-0.211
0.720	241	0.191	93.839	94.444	-0.605
0.840	255	0.145	100.000	100.000	0.000

Appendix Submenu: 15% Tables, Count Number 45, 2nd Run

Confirmation 15% DOT GAIN SETTING, CYAN [count 45]

density	step	reflectance	dot area	relative drive	gain
0.070	3	0.851	0.000	0.000	0.000
0.100	17	0.794	7.072	5.556	1.517
0.140	31	0.724	15.773	11.111	4.662
0.170	45	0.676	21.793	16.667	5.126
0.200	59	0.631	27.410	22.222	5.188
0.220	73	0.603	30.946	27.778	3.168
0.260	87	0.550	37.546	33.333	4.213
0.310	101	0.490	44.986	38.889	6.097
0.360	115	0.437	51.616	44.444	7.172
0.430	129	0.372	59.706	50.000	9.706
0.480	143	0.331	64.736	55.556	9.180
0.530	157	0.295	69.219	61.111	8.108
0.570	171	0.269	72.451	66.667	5.785
0.670	185	0.214	79.343	72.222	7.121
0.740	199	0.182	83.305	77.778	5.527
0.840	213	0.145	87.964	83.333	4.631
0.940	227	0.115	91.665	88.889	2.776
1.160	241	0.069	97.346	94.444	2.901
1.320	255	0.048	100.000	100.000	0.000

Confirmation 15% DOT GAIN SETTING, BLACK [count 45]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.060	17	0.871	0.000	5.556	-5.556
0.110	31	0.776	11.256	11.111	0.145
0.150	45	0.708	19.373	16.667	2.707
0.190	59	0.646	26.776	22.222	4.554
0.240	73	0.575	35.121	27.778	7.343
0.270	87	0.537	39.685	33.333	6.352
0.310	101	0.490	45.301	38.889	6.412
0.350	115	0.447	50.422	44.444	5.978
0.410	129	0.389	57.272	50.000	7.272
0.460	143	0.347	62.300	55.556	6.745
0.530	157	0.295	68.434	61.111	7.323
0.580	171	0.263	72.249	66.667	5.582
0.680	185	0.209	78.678	72.222	6.455
0.750	199	0.178	82.374	77.778	4.596
0.910	213	0.123	88.886	83.333	5.553
1.070	227	0.085	93.392	88.889	4.503
1.310	241	0.049	97.687	94.444	3.242
1.530	255	0.030	100.000	100.000	0.000

Confirmation 15% DOT GAIN SETTING, MAGENTA [count 45]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.092	5.556	1.537
0.110	31	0.776	11.555	11.111	0.444
0.140	45	0.724	17.876	16.667	1.210
0.180	59	0.661	25.653	22.222	3.431
0.220	73	0.603	32.745	27.778	4.967
0.250	87	0.562	37.652	33.333	4.318
0.300	101	0.501	45.112	38.889	6.224
0.340	115	0.457	50.492	44.444	6.048
0.380	129	0.417	55.399	50.000	5.399
0.440	143	0.363	61.962	55.556	6.406
0.480	157	0.331	65.859	61.111	4.748
0.530	171	0.295	70.252	66.667	3.586
0.620	185	0.240	76.991	72.222	4.769
0.680	199	0.209	80.768	77.778	2.990
0.780	213	0.166	86.010	83.333	2.677
0.890	227	0.129	90.540	88.889	1.651
1.040	241	0.091	95.130	94.444	0.686
1.290	255	0.051	100.000	100.000	0.000

Confirm 15% DOT GAIN SETTING, YELLOW [count 45]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.967	5.556	2.411
0.120	31	0.759	15.401	11.111	4.290
0.150	45	0.708	22.340	16.667	5.673
0.180	59	0.661	28.816	22.222	6.593
0.210	73	0.617	34.859	27.778	7.081
0.240	87	0.575	40.499	33.333	7.165
0.270	101	0.537	45.762	38.889	6.873
0.310	115	0.490	52.238	44.444	7.793
0.340	129	0.457	56.718	50.000	6.718
0.390	143	0.407	63.530	55.556	7.974
0.430	157	0.372	68.442	61.111	7.331
0.470	171	0.339	72.922	66.667	6.255
0.520	185	0.302	77.972	72.222	5.750
0.580	199	0.263	83.312	77.778	5.534
0.640	213	0.229	87.963	83.333	4.630
0.730	227	0.186	93.839	88.889	4.950
0.770	241	0.170	96.085	94.444	1.640
0.850	255	0.141	100.000	100.000	0.000

Confirmation 5% DOT GAIN SETTING, CYAN [count 45]

density	step	reflectance	dot area	relative drive	gain
0.06	3	0.87096359	0	0	0
0.08	17	0.831763771	4.756162444	5.555555556	-0.799393112
0.1	31	0.794328235	9.298262316	11.11111111	-1.812848795
0.13	45	0.741310241	15.73100095	16.66666667	-0.935665717
0.15	59	0.707945784	19.77915172	22.22222222	-2.443070501
0.18	73	0.660693448	25.51233606	27.77777778	-2.265441714
0.21	87	0.616595002	30.86285501	33.33333333	-2.470478325
0.24	101	0.575439937	35.85624982	38.88888889	-3.032639064
0.28	115	0.52480746	41.99955081	44.44444444	-2.44489363
0.32	129	0.478630092	47.60230791	50	-2.397692093
0.38	143	0.416869383	55.095811	55.55555556	-0.459744552
0.44	157	0.363078055	61.62237936	61.11111111	0.51126825
0.48	171	0.331131121	65.49854024	66.66666667	-1.168126426
0.54	185	0.28840315	70.68277776	72.22222222	-1.539444459
0.61	199	0.245470892	75.89180175	77.77777778	-1.885976028
0.72	213	0.190546072	82.55589798	83.33333333	-0.777435354
0.84	227	0.144543977	88.13738896	88.88888889	-0.751499931
1	241	0.1	93.54196472	94.44444444	-0.902479724
1.33	255	0.046773514	100	100	0

Confirm 15% DOT GAIN SETTING, YELLOW [count 45]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.090	17	0.813	7.967	5.556	2.411
0.120	31	0.759	15.401	11.111	4.290
0.150	45	0.708	22.340	16.667	5.673
0.180	59	0.661	28.816	22.222	6.593
0.210	73	0.617	34.859	27.778	7.081
0.240	87	0.575	40.499	33.333	7.165
0.270	101	0.537	45.762	38.889	6.873
0.310	115	0.490	52.238	44.444	7.793
0.340	129	0.457	56.718	50.000	6.718
0.390	143	0.407	63.530	55.556	7.974
0.430	157	0.372	68.442	61.111	7.331
0.470	171	0.339	72.922	66.667	6.255
0.520	185	0.302	77.972	72.222	5.750
0.580	199	0.263	83.312	77.778	5.534
0.640	213	0.229	87.963	83.333	4.630
0.730	227	0.186	93.839	88.889	4.950
0.770	241	0.170	96.085	94.444	1.640
0.850	255	0.141	100.000	100.000	0.000

Appendix Submenu: 35% Tables, Count Number 45, 2nd Run

Confirmation 35% DOT GAIN SETTING, CYAN [count 45]

density	step	reflectance	dot area	relative drive	gain
0.060	3	0.871	0.000	0.000	0.000
0.130	17	0.741	15.672	5.556	10.116
0.200	31	0.631	29.010	11.111	17.899
0.260	45	0.550	38.851	16.667	22.185
0.310	59	0.490	46.075	22.222	23.853
0.370	73	0.427	53.714	27.778	25.936
0.440	87	0.363	61.390	33.333	28.057
0.500	101	0.316	67.053	38.889	28.164
0.540	115	0.288	70.416	44.444	25.972
0.600	129	0.251	74.914	50.000	24.914
0.670	143	0.214	79.434	55.556	23.878
0.720	157	0.191	82.244	61.111	21.133
0.790	171	0.162	85.673	66.667	19.006
0.850	185	0.141	88.202	72.222	15.980
0.930	199	0.117	91.075	77.778	13.297
1.000	213	0.100	93.189	83.333	9.856
1.150	227	0.071	96.719	88.889	7.830
1.250	241	0.056	98.479	94.444	4.035
1.360	255	0.044	100.000	100.000	0.000

Confirmation 35% DOT GAIN SETTING, BLACK [count 45]

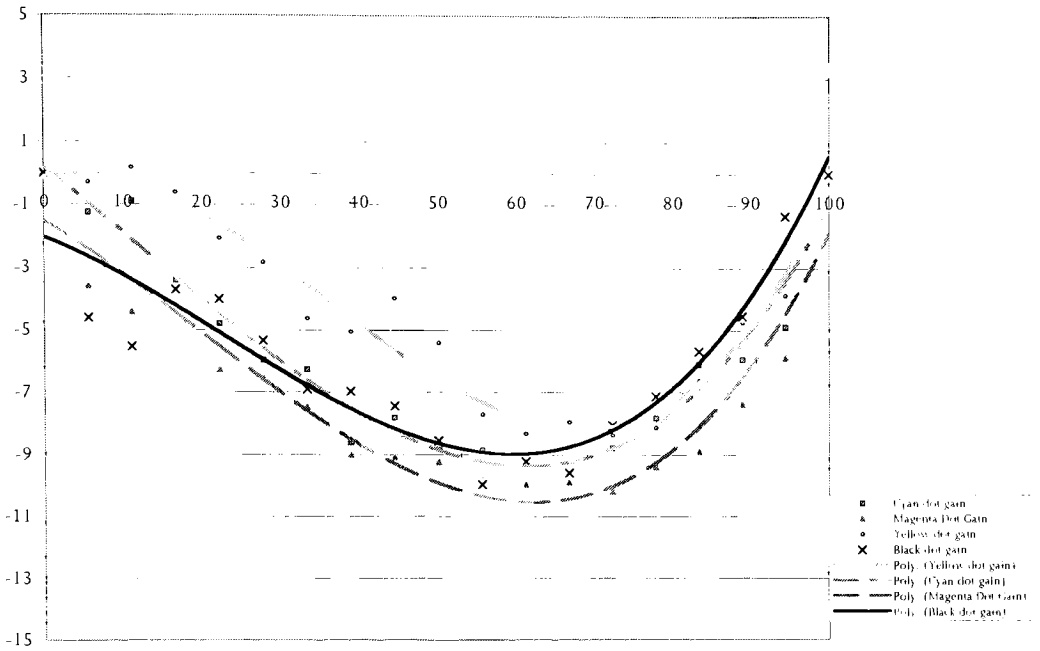
density	step	reflectance	dot area	relative drive	gain
0.050	3	0.891	0.000	0.000	0.000
0.130	17	0.741	17.373	5.556	11.817
0.190	31	0.646	28.456	11.111	17.345
0.250	45	0.562	38.109	16.667	21.443
0.310	59	0.490	46.517	22.222	24.295
0.380	73	0.417	54.965	27.778	27.187
0.410	87	0.389	58.188	33.333	24.855
0.480	101	0.331	64.899	38.889	26.010
0.540	115	0.288	69.849	44.444	25.405
0.590	129	0.257	73.483	50.000	23.483
0.650	143	0.224	77.326	55.556	21.771
0.710	157	0.195	80.674	61.111	19.562
0.800	171	0.158	84.902	66.667	18.235
0.910	185	0.123	89.011	72.222	16.789
1.050	199	0.089	92.939	77.778	15.161
1.160	213	0.069	95.250	83.333	11.916
1.280	227	0.052	97.185	88.889	8.296
1.390	241	0.041	98.545	94.444	4.101
1.550	255	0.028	100.000	100.000	0.000

Appendix D

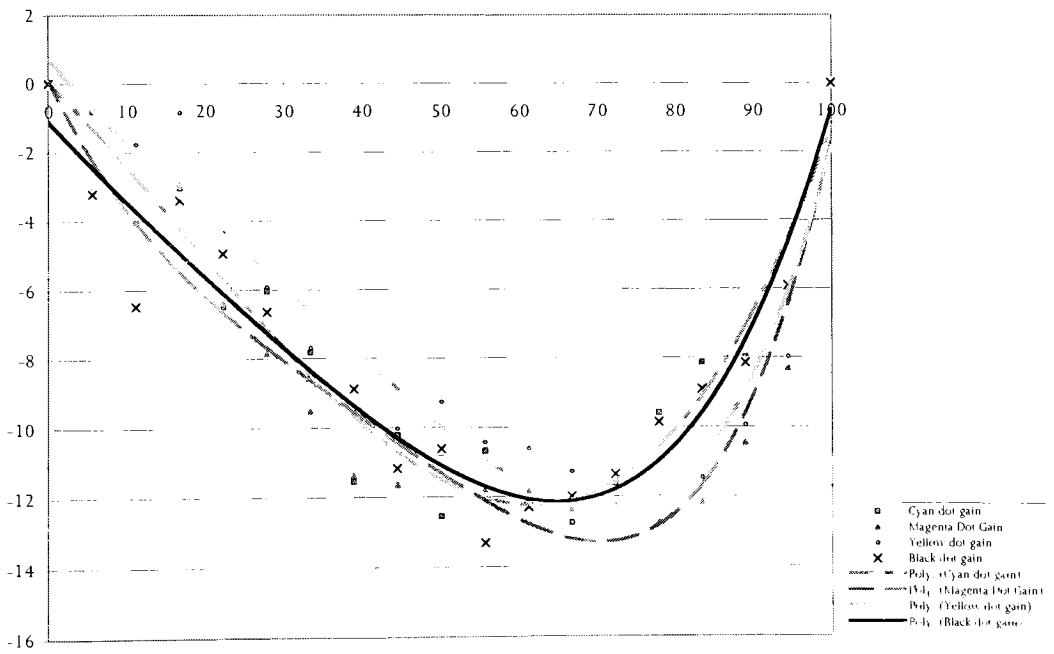
Dot Gain Curve and Transfer Curve Comparison

[Between First and Second Run]

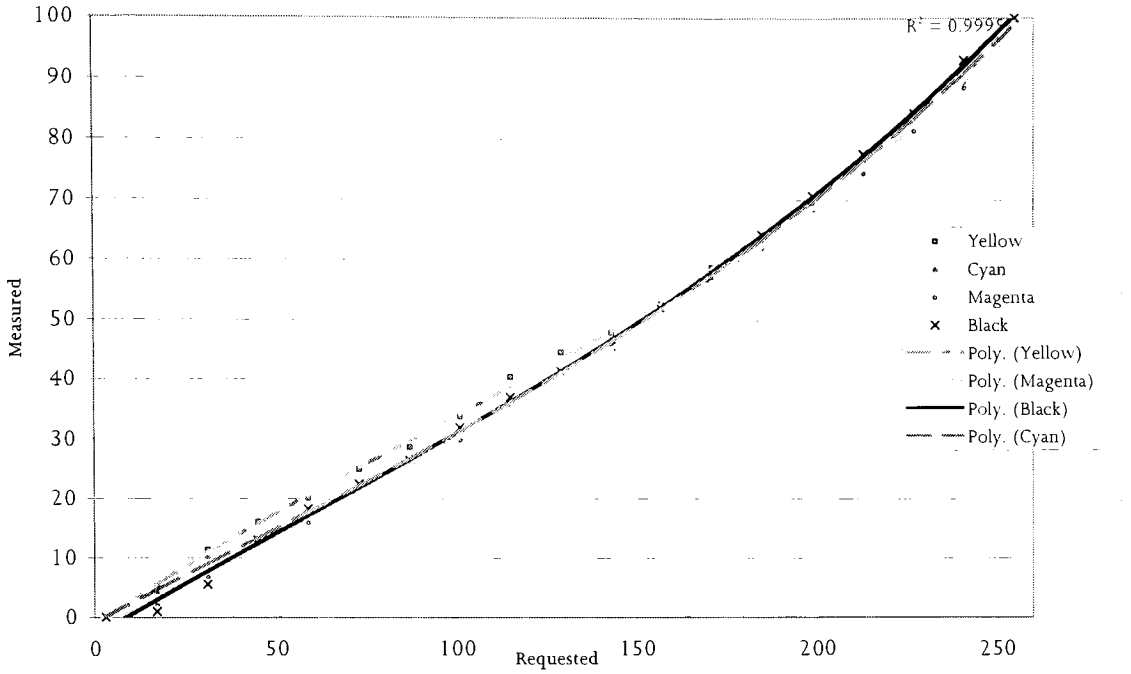
DOT GAIN -5% All Colors (Average)



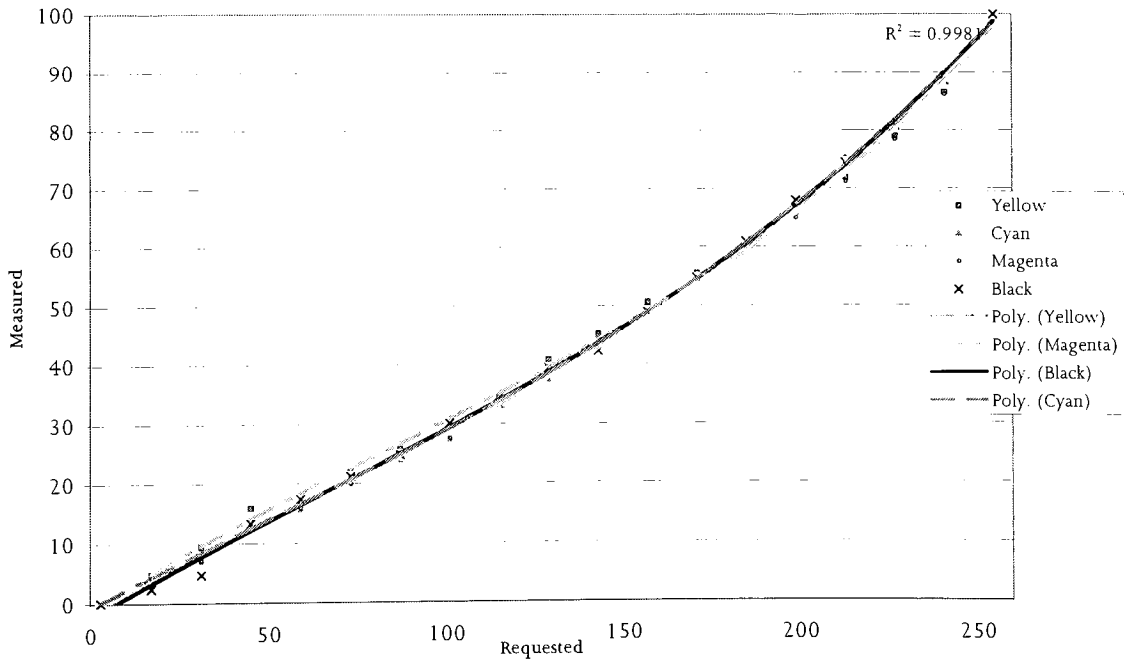
DOT GAIN -5% CMYK (2nd Run)



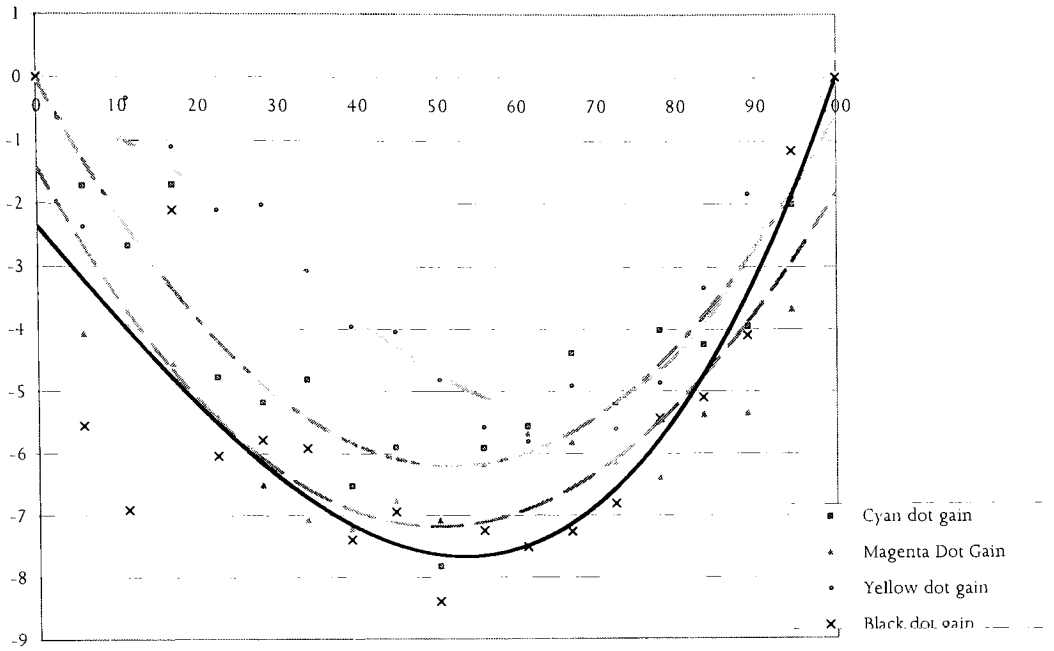
TRANSFER CURVE -5% (Average)



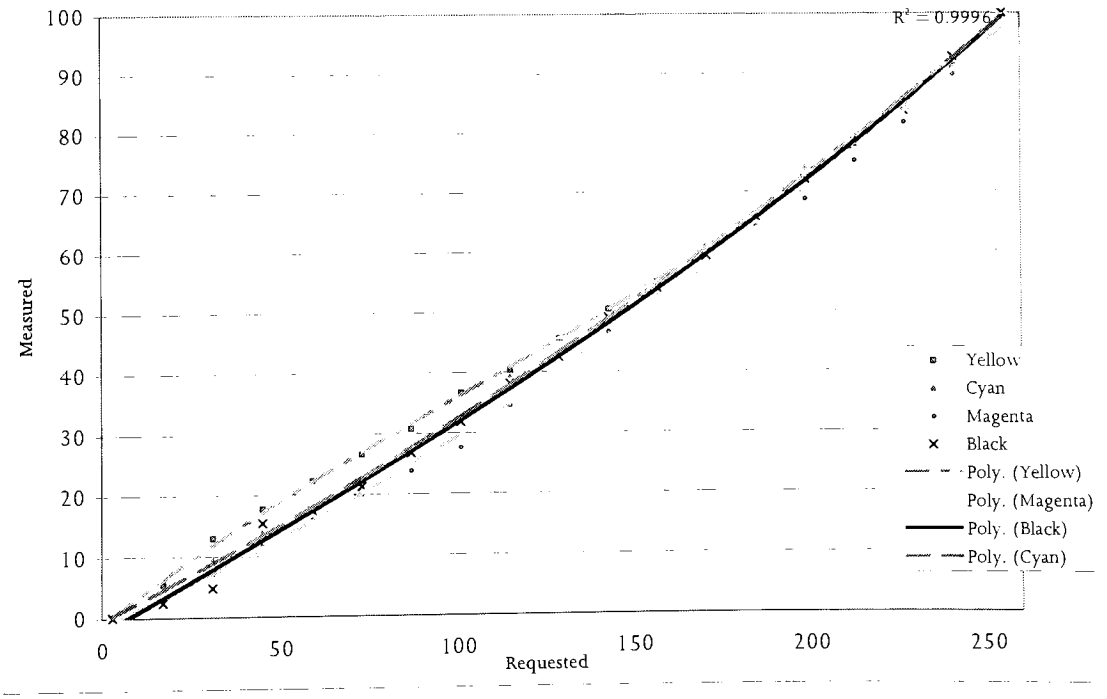
TRANSFER CURVE -5% CMYK (2nd Run)



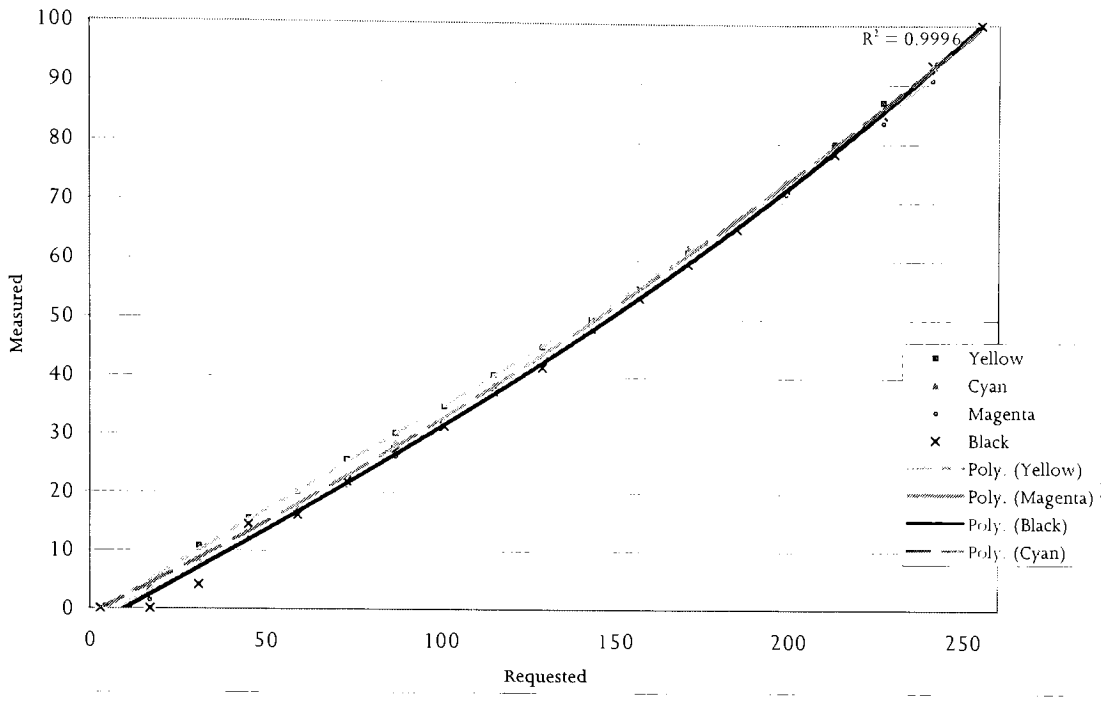
DOT GAIN 0% All Colors (Average)



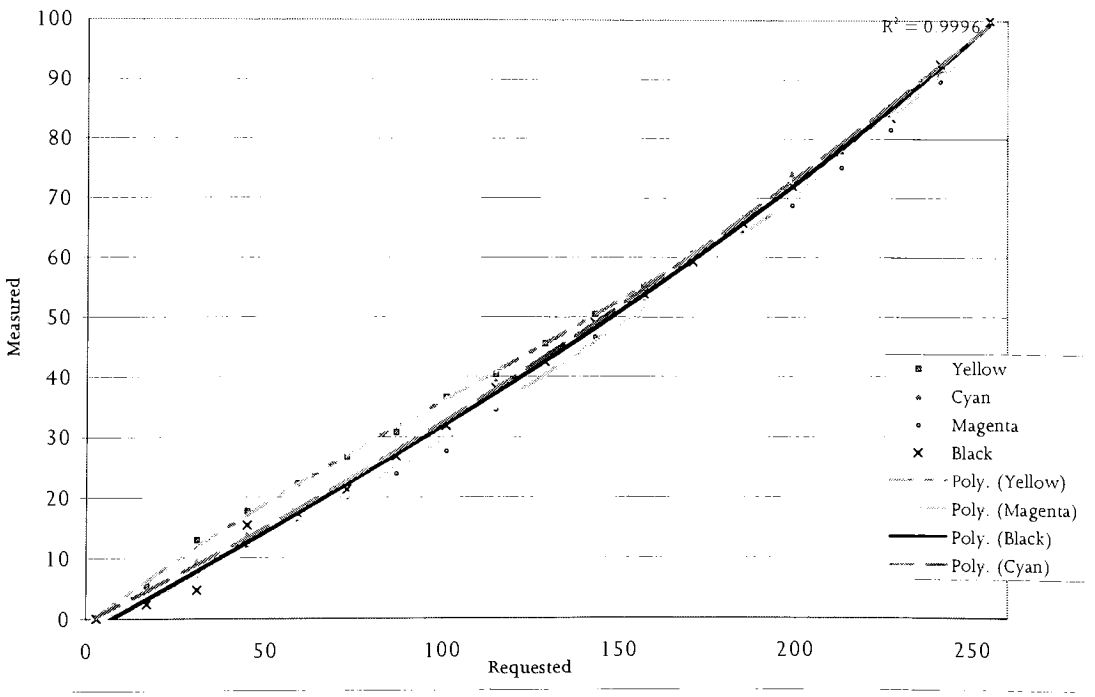
TRANSFER CURVE 0% CMYK (2nd Run)



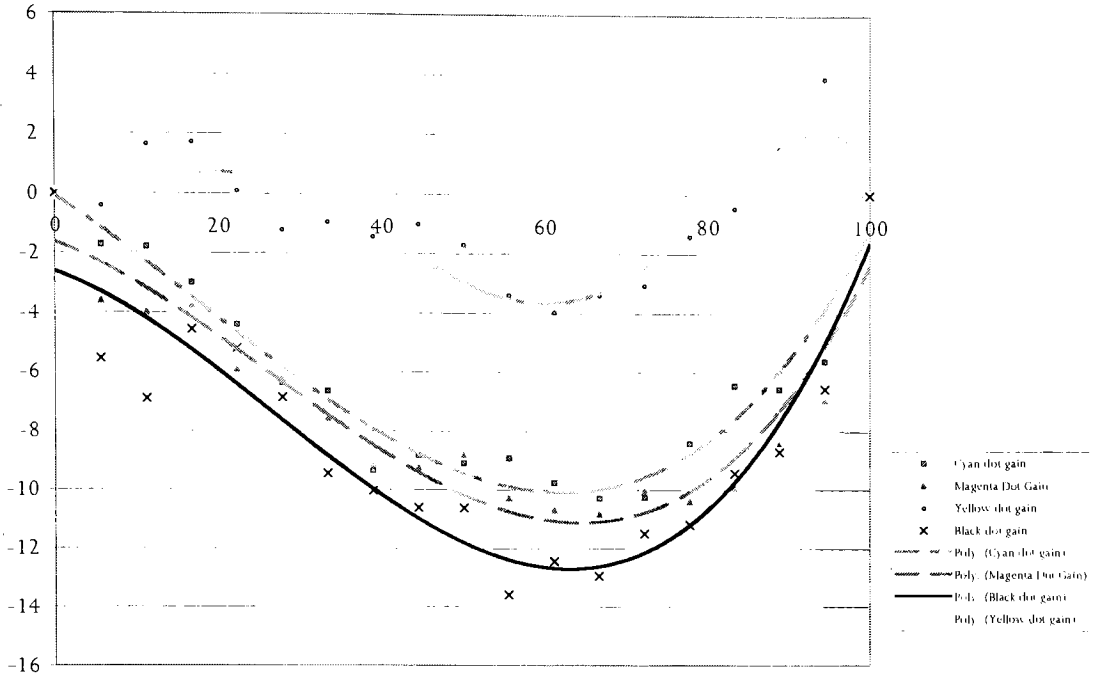
TRANSFER CURVE 0% (Average)



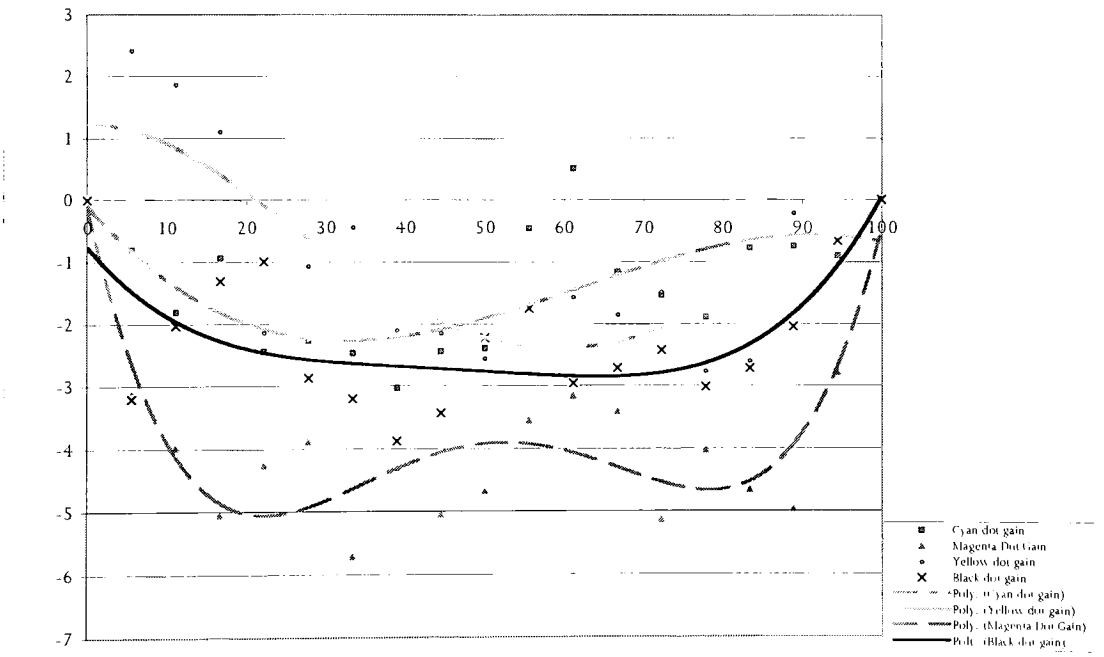
TRANSFER CURVE 0% CMYK (2nd Run)



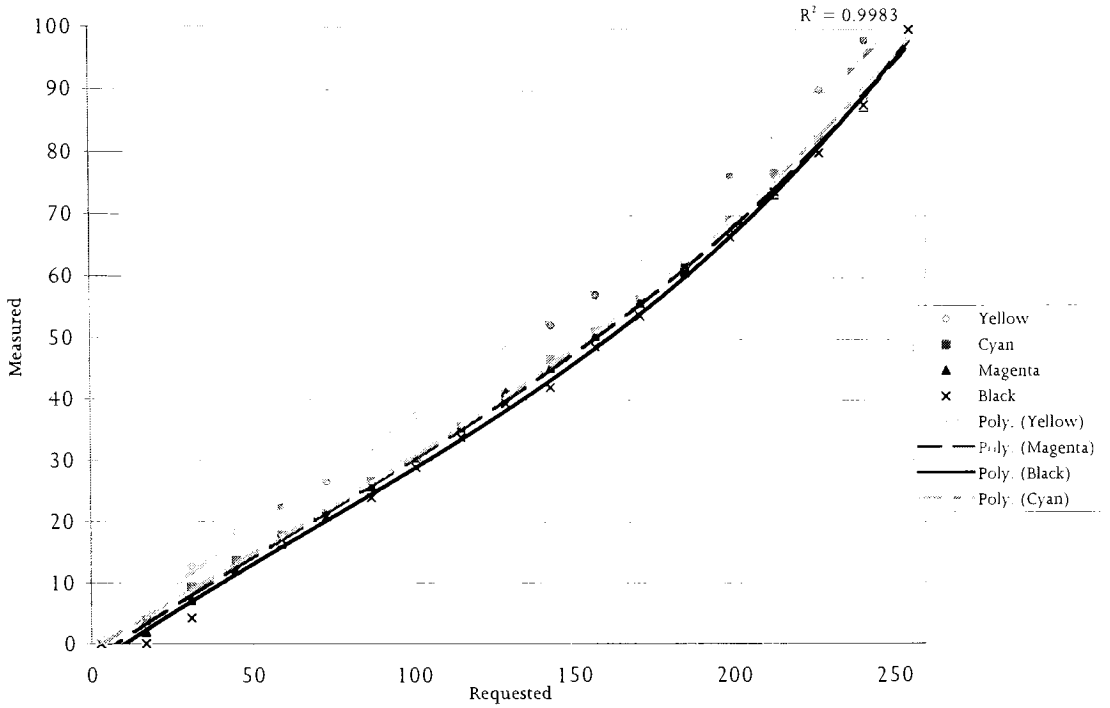
DOT GAIN 30% All Colors (Average)



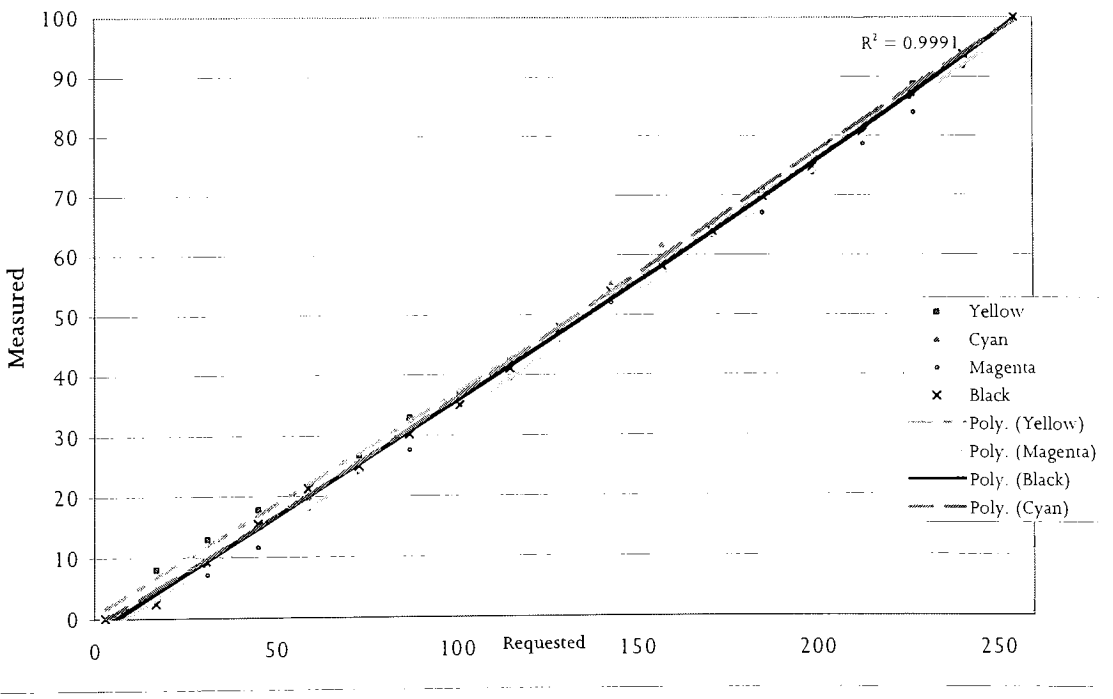
DOT GAIN 5% CMYK (2nd Run)



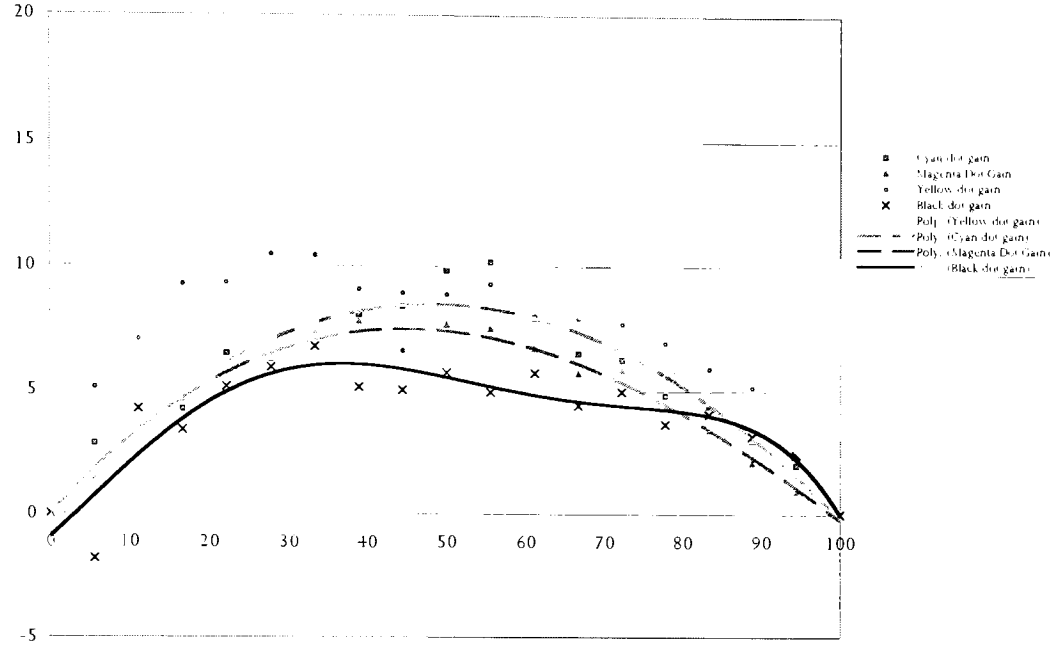
TRANSFER CURVES 5% (Average)



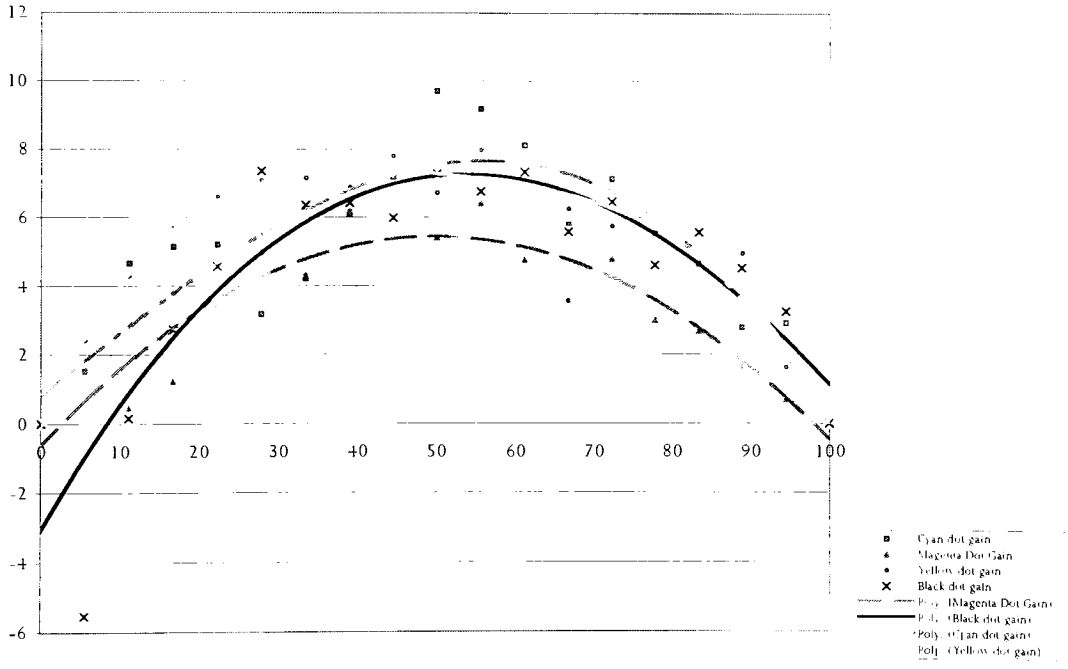
TRANSFER CURVE 5% CMYK (2nd Run)



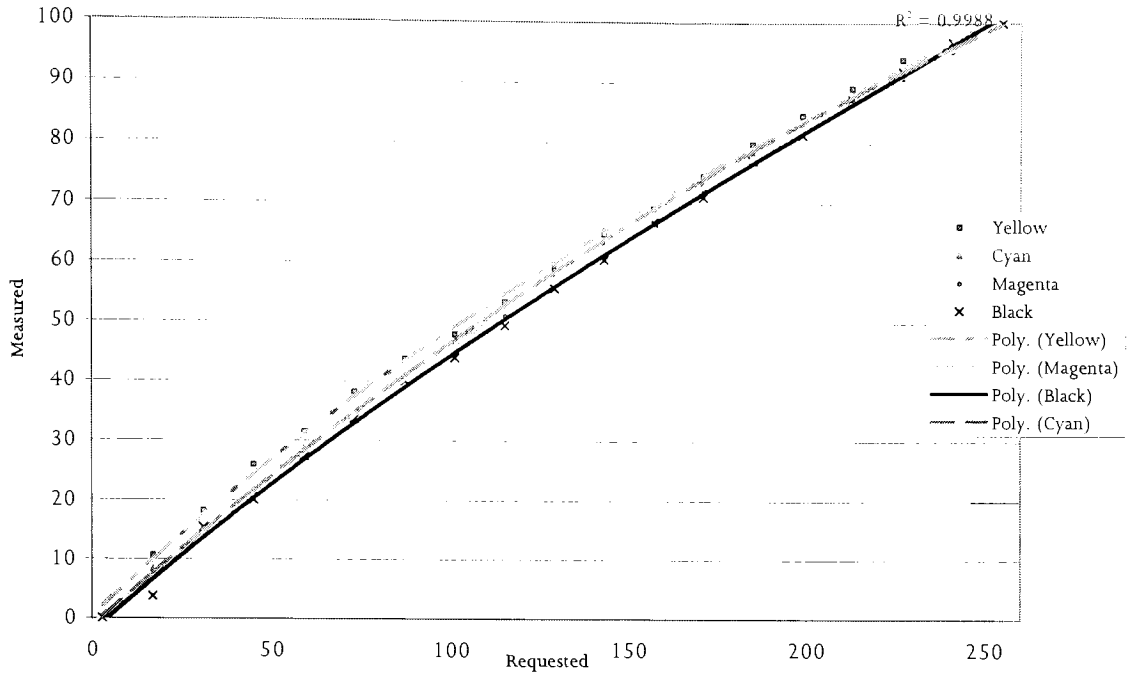
DOT GAIN 15% All Colors (Average)



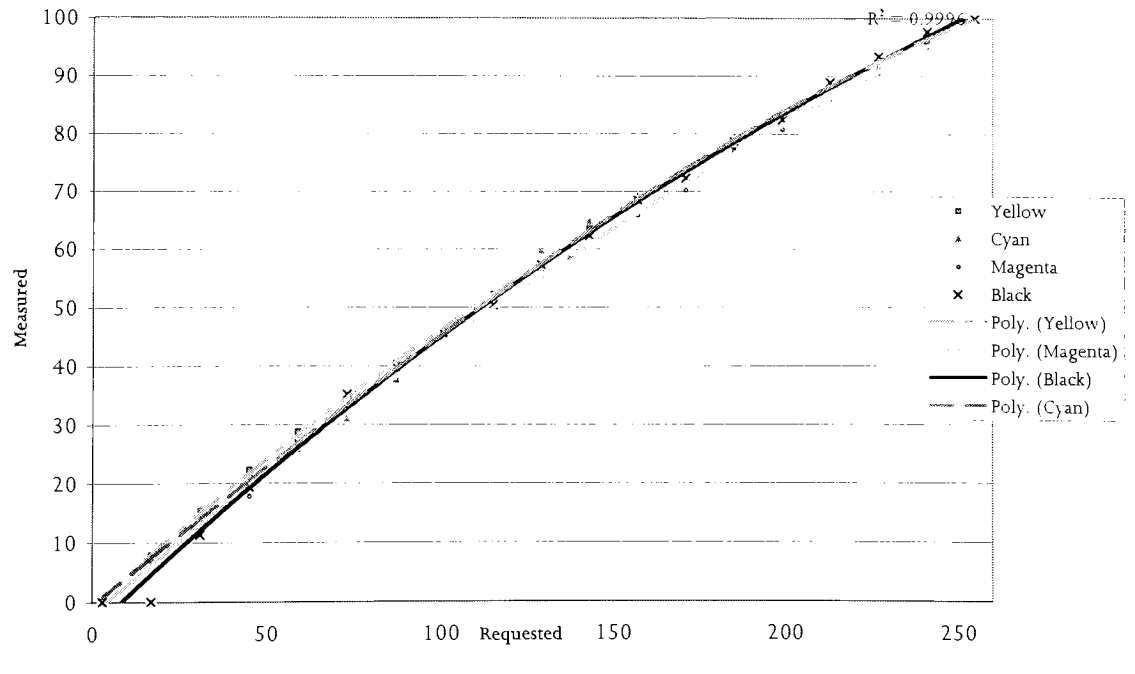
DOT GAIN 15% CMYK (2nd Run)



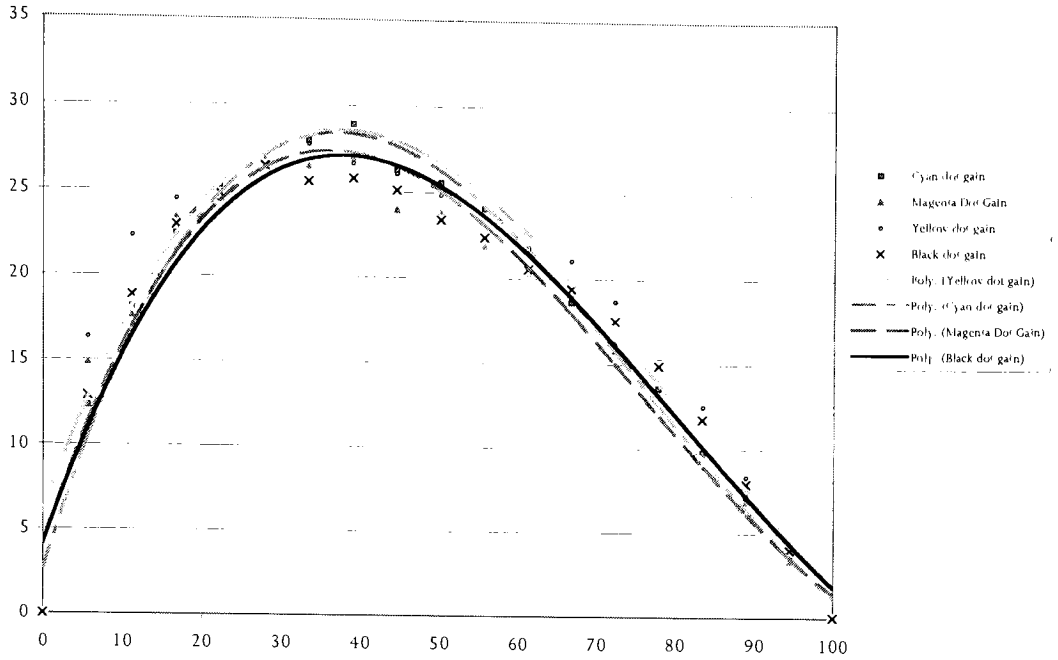
TRANSFER CURVE 15% (Average)



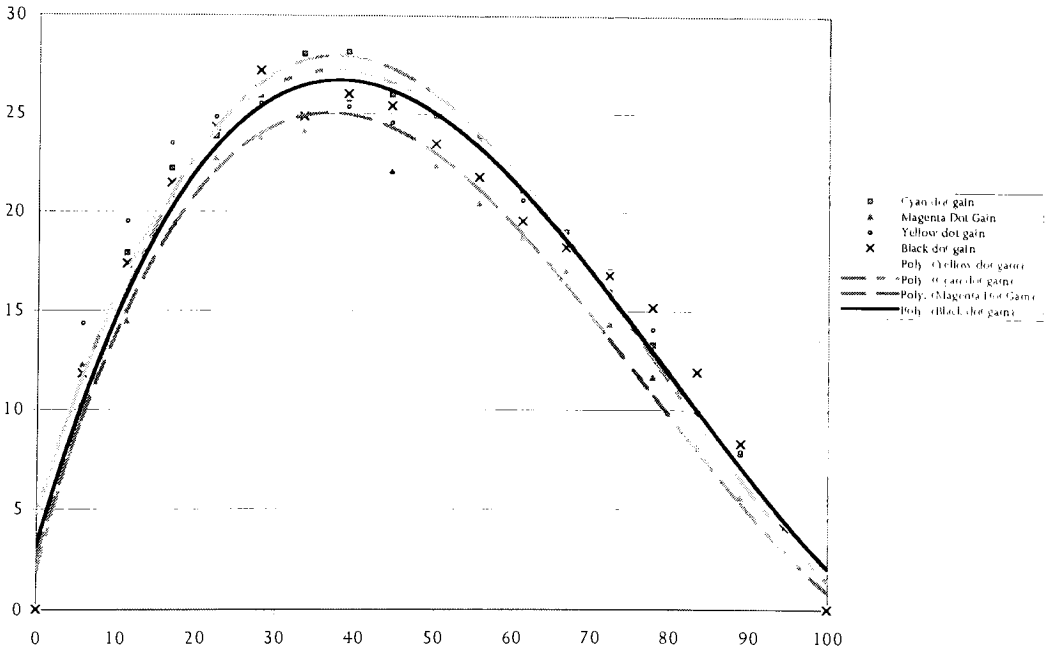
TRANSFER CURVE 15% CMYK (2nd Run)



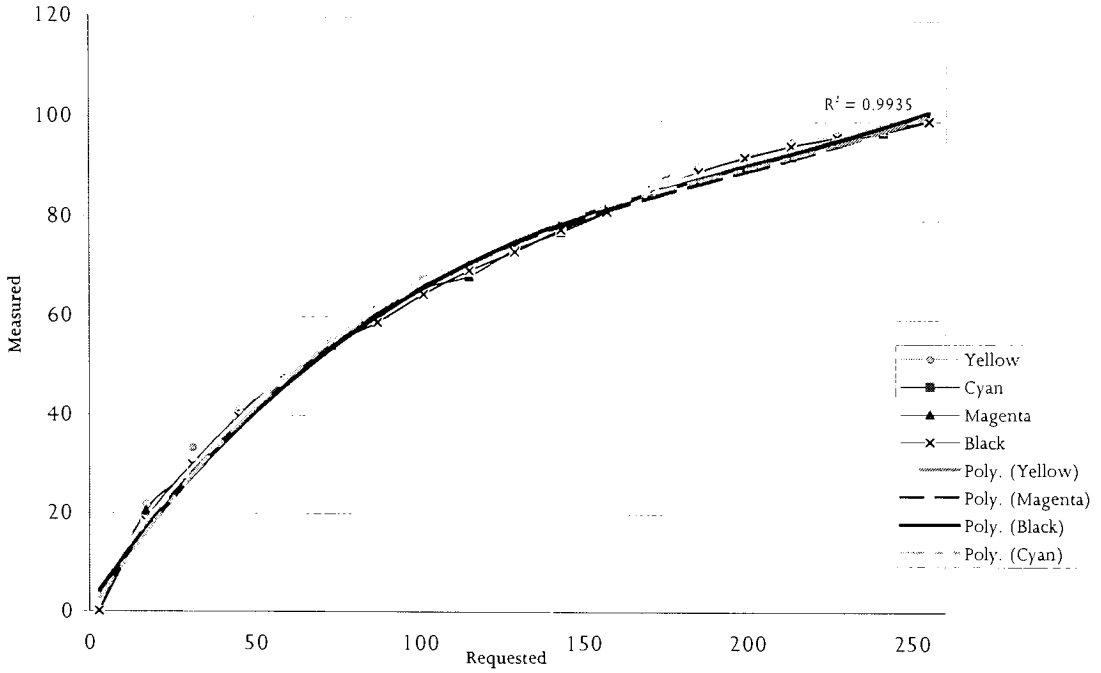
DOT GAIN 35% All Colors (Average)



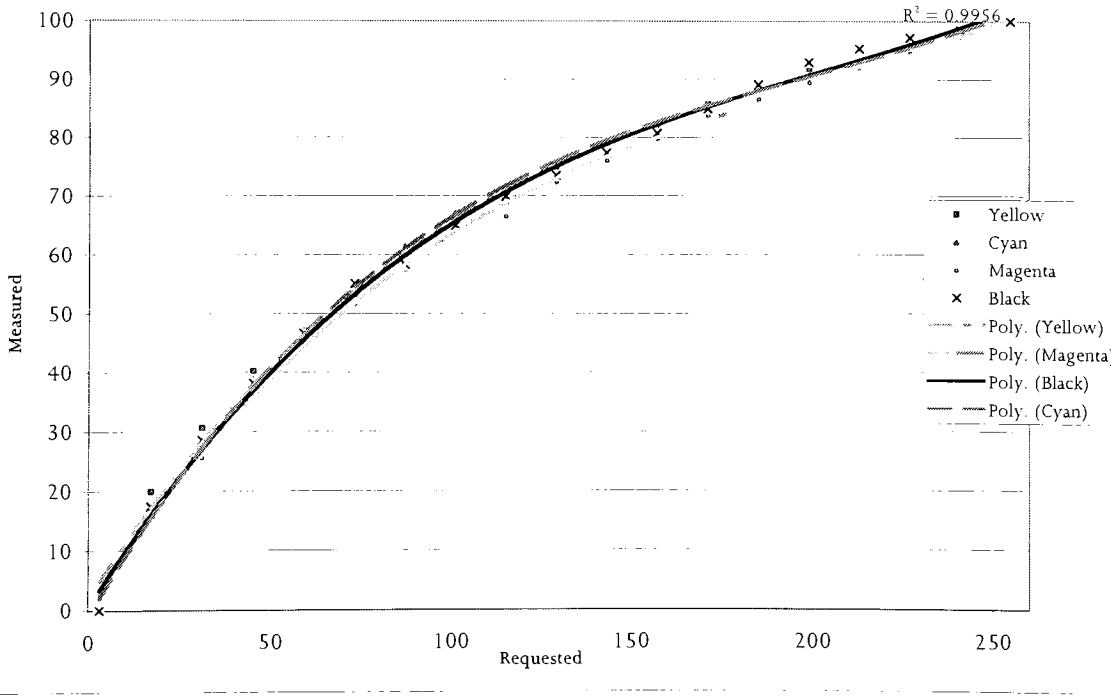
DOT GAIN 35% CMYK (2nd Run)



TRANSFER CURVES 35% (Average)



TRANSFERCURVE 35% CMYK (2nd Run)



Appendix E

Psychometeric Evaluation Instructions

The same instructions were given orally to each participant in the image evaluation.

First test. Each participant was instructed for the first test (preferred curve for all image types): *Each row is an image set. Please rank the row, or image set, in order of quality. "Quality" is whatever it means to you. There are no right or wrong answers.*

If the participants asked for assistance they were repeated the first instructions and told no more additional information.

Second test. For the second test, one image set at a time was handed to the participant for ranking. Each participant was instructed for the second test (preferred curve for different image types): *Please rank the images in order of quality.*